HFS Technical Report No. 1

KENYA MINISTRY OF HEALTH
PREVENTIVE AND PRIMARY HEALTH CARE
RESOURCE GAP STUDY

Submitted to:

The Health Services Division
Office of Health
Bureau for Science and Technology,
Agency for International Development

October 1990

Health Financing and Sustainability (HFS) Project
Abt Associates Inc., Prime Contractor
4800 Montgomery Lane, Suite 600
Bethesda, Maryland 20814 USA
Tel: (301) 913-0500 Fax: (301) 652-7791
Telex: 312636

Management Sciences for Health, Subcontractor
The Urban Institute, Subcontractor

A.I.D. Contract No. DPE-5974-Z-00-9026-00

ABSTRACT

This study examines the gap in resources used to provide preventive and primary health care (P/PHC) at Ministry of Health (MOH) facilities in Kenya. The study, performed in collaboration with other donor organizations, determines the current expenditures for P/PHC services, estimates the costs of offering P/PHC services at facilities operating at full capacity, and calculates the resource gap. MOH facilities do not provide P/PHC services at full capacity because of a lack of staff, drugs, supplies, transportation and maintenance. The HFS team finds that the annual recurrent expenditure gap (approximately 423 million Kenyan shillings, or US $20 million) represents 37 percent of current expenditures for P/PHC services and 20 percent of the entire MOH budget. An additional capital outlay of 326 million Kenyan shillings would be required to upgrade facilities and equipment to conditions required to provide P/PHC at full capacity.

STUDY STAFF

CO-TECHNICAL DIRECTORS

Larry Forgy	Abt Associates Inc.
Mutsembi Manundu	University of Nairobi

MINISTRY OF HEALTH TEAM LEADER

S. N. Muchiri	Ministry of Health

STUDY PARTICIPANTS

J. Bennett	Abt Associates Inc.
G. K. Ikiara	University of Nairobi
W. Liambila	Ministry of Health
F. Maloba	Christian Health Assoc. of Kenya
C. A. Muga	Nairobi City Commission
S. Muindi	Kenya Institute of Administration
B. M. Nganda	University of Nairobi
W. G. Noreh	Kenyatta National Hospital
I. Omeri	Ministry of Health
T. Omurwa	Ministry of Health
J. O. Owour	Central Bureau of Statistics
E. Wahome	Min. of Planning and National Dev.
N. Wangechi	Ministry of Health
O. Ywaya	Nairobi City Commission

STUDY MANAGEMENT

Health Financing and Sustainability Project
Information and Planning Systems Project

STUDY FUNDING

U.S. A.I.D.
British ODA
Swedish IDA

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENTS

The Study Team has benefited from the support given by various institutions and individuals. We would like to thank the Ministry of Health, in particular Mr. D. M. Mbiti (P.S.), Mr. G. H. Olum (D. S./P.D), and Mr. Mutai (DS/Admin) for their support and advice throughout the study as well as for releasing the Ministry of Health staff to participate in the study. We also want to thank several MOH officials who provided needed data and information and were available for interviews. The list of these officials is at the end of this report.

We also express our gratitude to the Medical Officers of Health and their staff who provide health care in the districts which were surveyed. These districts include: Kiambu, where the survey instruments were tested; and Busia, Machakos, Baringo, Kilifi and Meru, where the actual surveys were conducted. We also thank the Chief Administrator, Coast General Hospital; AMREF HQ; Medical Officer of Health, Chogoria Hospital; the Officer in Charge, Kibwezi Health Center, and all the staff working in these institutions for the invaluable support in data collection that they provided.

The Provincial Administration, in particular the District Commissioners in the sampled districts and the staff in the accounting departments in these districts supported the team and facilitated the collection of required information and data. We are grateful for this support.

The following institutions kindly released their staff for the study and the team is grateful to them. Kenya Institute of Administration (K.I.A.), Nairobi City Commission (N.C.C.), Christian Health Association of Kenya (C.H.A.K.), Kenyatta National Hospital (K.N.H.), Central Bureau of Statistics (C.B.S.), Ministry of Planning and National Development (MPND) and the University of Nairobi (UoN).

This study has also benefited much from the following research assistants: J. Adhiambo, R. Aroka, B. Juma, P. Lumumba, P. Murambi, M. Musyoka, M. Mwirichia, O. Ongile, J. Ouma, M. Owende, and E. Owuor. We thank them for their good work.

Last but not least, we say "ASANTE SANA" to USAID, SIDA, and ODA for their financial support, without which the study would not have been possible. In particular, David Oot, Linda Lankenau, and Connie Johnson at USAID, Ulla-Britta Segersky at SIDA, and Gillian Holmes and David Nabarro at ODA were helpful.

Thanks also go to Thunder & Associates, Inc., for the excellent administrative and logistical support they provided to the study team.

The views contained in this report are those of the Study Team members and do not necessarily reflect those of the Ministry of Health, USAID, SIDA, and ODA. Any errors or omissions are entirely the responsibility of the Study Team.

ABBREVIATIONS

AMREF	African Medical Research Foundation
CDD	Control of Diarrhoeal Diseases
DMOH	District Medical Officer of Health
FHFE	Family Health Field Educator
FP	Family Planning
FY	Financial Year
HC	Health Center
HEO	Health Education Officer
KEPI	Kenya Expanded Program of Immunization
KSh	Kenyan Shillings
MCH/FP	Maternal/Child Health and Family Planning
MOH	Ministry of Health
NGO	Non-Governmental Organization
OPD	Out Patient Department
ODA	Overseas Development Administration
PGH	Provincial General Hospital
PHC	Primary Health Care
PHO	Public Health Officer
PHT	Public Health Technician
P/PHC	Primary and Preventive Health Care
SIDA	Swedish International Development Agency
SPPS	Sampling with Probabilities Proportional to Size
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Since the late 1970s, the Government of Kenya has regarded Primary and Preventive Health Care (P/PHC) as an efficient and cost-effective means of providing health care to the population. However, the provision of P/PHC is hampered by insufficient staff, drugs, supplies, transportation, and other resources, which constrain existing P/PHC facilities from operating at full capacity.

The main objective of the P/PHC Resource Gap Study was to estimate the additional financial resources required for the MOH to operate its P/PHC system at full capacity. This "gap" in funding was measured by determining the funding required for full operation of the P/PHC system and subtracting the current level of expenditure from it. The Study also developed a mechanism to monitor the shift of resources in the MOH recurrent budget toward P/PHC.

Primary Health Care in Kenya includes preventive, promotive, and rehabilitative health care as well as treatment of minor ailments (primary curative health care). Kenya's P/PHC program includes the eight elements of P/PHC defined by the World Health Organization, as well as programs in mental and dental health. For purposes of this study, P/PHC includes all health care services provided at health centers and dispensaries, and services provided at hospital outpatient departments with the exclusion of those provided at specialized clinics.

The approach used in this study was to survey a sample of MOH facilities providing P/PHC to determine their resource use and the extent to which lack of resources constrains their ability to provide services. The Study examined several facilities that were assumed to be operating without serious resource constraints to their ability to operate at full capacity. Information from this survey, other studies, and norms obtained from the MOH and elsewhere were used to determine the appropriate mix of resources to be used in providing P/PHC services.

The delivery of P/PHC services by the MOH is constrained by two types of financing gaps: a gap in annual recurrent expenditures needed to provide services at full capacity, and a one-time investment expenditure required to bring the facilities providing P/PHC services up to full capacity. The recurrent cost gap and the additional investment gap are summarized by expenditure category in

Tables 1 and 2 below.

The total recurrent expenditure gap is approximately KSh. 430 million (KSh. 23 = US$ 1) annually. This represents 37% of current expenditures for P/PHC services, and approximately 21% of the entire MOH recurrent budget. When only the non-staff portion of the recurrent budget is considered, the gap is Ksh. 250 million and represents 67% of the non-staff P/PHC budget.

As the investment gap indicates, KSh. 375 million are required to upgrade equipment, vehicles, staff training, and provide MCH/FP space and equipment in dispensaries. This study did not determine the expenditure required to rehabilitate P/PHC buildings. Therefore, this figure is an underestimate of the actual additional investment required to provide P/PHC at full capacity.

TABLE 1: SUMMARY OF ANNUAL FINANCING GAP BY RESOURCE CATEGORY

Category	Expenditure Gap (million Ksh.)
Drugs	79.1
Equipment	7.2
Transport	17.3
Training	5.1
Supplies	61.3
Patient Food	6.0
Building Maint.	83.3
Staff	170.5
TOTAL	429.8

The magnitude of these funding gaps is a function of both the current expenditures, which were empirically determined, and the estimates of full capacity needs in health centers, dispensaries, and hospital outpatient departments. This full capacity determination was based on a set of norms and other, sometimes subjective information. This is a critical aspect that should be considered when making use of these calculations.

TABLE 2: INVESTMENT EXPENDITURES NEEDED TO OPERATE THE MOH P/PHC SYSTEM AT FULL CAPACITY

Category	Expenditure Gap (million KSh.)
Equipment	315.8
Transport	5.5
Training	27.3
MCH/FP	26.5
TOTAL	375.1

These gaps may be somewhat mitigated by cost sharing revenue, depending on the structure and magnitude of any cost sharing program. Previous MOH policy required 25% of cost sharing revenue collected in the district and provincial hospitals to be used for P/PHC. Based on the definition of primary health care adopted for this study, all the revenue collected at the Rural Health Centers would be assumed to be used for P/PHC. Under the previous cost sharing plan, revenue available for P/PHC had been projected for 1990 to be KSh. 64 million. This consisted of KSh. 37 million collected at HCs and KSh. 27 million collected at hospitals. At that rate of collection, revenues would have been able to fill approximately 15% of the P/PHC financing gap in 1990.

This study provides baseline information on current allocations of MOH resources to P/PHC. In addition, the study provides a means of monitoring shifts to close the P/PHC resource gaps in the MOH recurrent budget. A computer program developed by the study will enable the MOH to monitor the financial resources allocated to P/PHC in the recurrent budget and to determine the levels of funding directed toward P/PHC in the Forward Estimates.

It will be difficult to determine from MOH budgets exactly how resources are being allocated, since actual expenditures within budget items cannot be tracked. It is unlikely that the proportions used to determine resource allocation in the monitoring program will remain constant as the needs of facilities change. Consequently, the study proposes that the resource utilization survey be repeated on a smaller scale every two years or so. This will allow actual measurement of resource allocations at the facility level.

Since the survey has already been developed, it can be implemented by Kenyan consultants and the MOH at minimal cost.

The results of this survey are used in a planning program using a computer spreadsheet. This program contains information about unit costs for full capacity, current expenditures, and numbers of facilities. It can be used to forecast the cost of expanding MOH facilities and estimate the resulting gap in funding.

This survey is a rich source of data which provides a good baseline description of primary health care facilities in Kenya. It will be valuable for addressing other questions of facility operation for the MOH and the donor community. Several other uses for the data are suggested.

This report is organized almost in chronological order, with a description of the methodology and sampling in the chapters following the introduction. Sections four and five give detailed explanations of the analysis that was performed. Sections six, seven, and eight provide a discussion of the results of the study in the findings, monitoring and planning, and conclusions. The reader who is more interested in the results than the process may go directly to these sections. More technical material, as well as copies of all the survey instruments, are included in the appendices.

1.0 INTRODUCTION

BACKGROUND TO THE STUDY

Since the late 1970s, the Government of Kenya has regarded primary and preventive health care as an efficient and cost-effective means of providing health care to the population. However, despite the attention and financial support given by the Government and various Non-Governmental Organizations (NGOs), the provision of P/PHC is still constrained by inadequate resources. Insufficient staff, drugs, supplies, transportation, and poor maintenance of vehicles, equipment, and buildings have constrained existing facilities from delivering P/PHC services at full capacity.

The Government of Kenya has stated in various official documents, such as the Development Plans, its desire to shift resources from secondary curative care to P/PHC. A program for reallocating resources from curative to P/PHC currently is being developed as part of the Kenya Health Care Financing Program supported by the United States Agency for International Development through a Program Grant Agreement between the governments of Kenya and the United States of America. This shift of resources is one of the conditions precedent for the Program Grant, which requires that there be an "increased allocation of MOH financial resources for preventive/primary health and a system for monitoring these changes".

It was concluded, however, that there was inadequate information to determine the current level of funding and the level of funding required to provide P/PHC services at full capacity. Therefore, the MOH and USAID agreed that a study should be undertaken to determine the P/PHC resource gap. The results of this study will be used to establish the P/PHC resource benchmarks. Discussions about the study began in December 1989. The study was launched in April 1990. Planning for the study and data collection were completed by the end of June and the final report was submitted to the MOH in October 1990.

OBJECTIVES

The principal objectives of the P/PHC Resource Gap Study were to:

- Determine the current expenditures and resources used for providing P/PHC services at existing MOH facilities.
- Estimate the cost of providing P/PHC at full capacity in the existing MOH facilities.
- Estimate the gap in funding between what is needed for full capacity operations and actual allocations.
- Develop a mechanism to monitor the shift of resources from curative to P/PHC services.

It is anticipated that the results of this study will assist the Ministry of Health to move toward full capacity utilization of existing facilities in the provision of P/PHC.

DEFINITION OF PRIMARY HEALTH CARE

The MOH uses a definition of P/PHC adopted from the eight elements of the Alma-Ata definition plus mental and dental health. This definition regards P/PHC as the first level of contact of the individual, the family, and the community with the national health system. In addition, it emphasizes accessibility and affordability of services as well as the full participation of individuals and communities in the provision of health care.

In general, P/PHC includes preventive and rehabilitative health care and the treatment of minor ailments (primary curative care). In addition, there are proposals to consider community based rehabilitation as a P/PHC component. The essential elements of Kenya's P/PHC Program are:

1. Health Education, which strives to impart knowledge of basic health and the prevention of diseases to communities and individuals.

2. Nutrition and food supply, which aims at enhancing the population's ability to improve food production and nutrition status.

3. Water and Sanitation, which aims at the provision of safe water and improved sanitation for the population.

4. Maternal and Child Health and Family Planning (MCH/FP), aimed at improving the health of mothers and children. MCH/FP activities include antenatal, perinatal, and postnatal care and family planning.

5. Immunization to protect the population from vaccine preventable diseases.

6. Control of Endemic diseases, such as malaria, schistosomiasis, filariasis, hookworm, trachoma, kala-azar, etc.

7. Treatment of Common Conditions, such as diarrhoeal diseases, acute respiratory infections, skin diseases, eye diseases, injuries, anemia and worms which, if untreated, increase morbidity.

8. Supply of Essential Drugs to improve drug availability in health centers and dispensaries by supplying drug kits to these facilities regularly.

9. Mental Health, which attempts to re-orient Kenya health workers toward considering treatment of mental health as an integral part of P/PHC.

10. Dental Health , which strives to prevent dental diseases.

Using this definition of P/PHC, the study has identified dispensaries, health centers, and outpatient departments (OPDs) of district and provincial hospitals as the facilities which provide P/PHC. All services provided at the hospital OPDs except those provided by the laboratory, pharmacy, and physio/ occupational referrals are included because they are similar to those provided by dispensaries and health centers. This also includes MCH/FP and minor theater services for outpatients.

2.0 METHODOLOGY

The objective of the P/PHC Resource Gap Study was to estimate the additional financial resources required for the MOH to provide P/PHC in existing facilities at full capacity. This "gap" in funding was measured by determining the funding required for full operation of the P/PHC system and subtracting the current level of expenditure from it.

Because this study is intended for practical applications, the full capacity definition was derived in a very concrete fashion. It was assumed that there is an appropriate mix of health care resources that, when present, would allow MOH facilities to operate at full capacity. In this context, full capacity was taken to mean that facilities could be fully utilized without shortages of key resources. For example, staff would not be idle because of lack of transport or working equipment, and sufficient drugs would be available for consultations. Conversely, facilities and transport would not be idle for lack of staff. The one constant assumed in terms of resource availability was the assumption of no increase in the number of facilities. This limitation eliminated a second possible definition of full capacity, that existing facilities adequately serve population needs. This study, therefore, was to examine the efficiency of operations rather than appropriate levels of service delivery. In addition, the scope of work (Appendix 2) specifies that the study concentrate on the resource needs of the existing facilities only. To examine population needs would have required population based data collection on medical and epidemiological patterns.

Definitions of concepts used in the study are provided below.

- Resources: The physical inputs used by a facility to provide services. These include drugs, equipment, staff, and other inputs.

- Full capacity funding: The amount of budget allocation required to operate existing facilities at full capacity.

- Current funding: The amount of budget allocation currently being used to provide P/PHC in the existing facilities.

- Resource gap: The difference between the amount of resources needed for full capacity operations and the current level of resources.

- Financial gap: The amount of budget allocation needed to fund the resource gap. This is equal to the difference between the full capacity funding and the current funding.

While the basic concept of this study can be stated simply, the steps required to measure these gaps are complex. The fundamental problem is that while it is straightforward (though not simple) to measure current resource use, there is no obvious method for measuring full capacity resource needs. Instead, the study relied on a number of methods. In some cases, current patterns of resource use indicated full capacity needs. In other cases, various operating norms or experience from other facilities provided guidance on full capacity operations.

A second major problem was the measurement of current resource use. In principle, the current funding of the MOH system should be measurable from MOH financial records. However, it was necessary to collect data on current resource use because information on current financing of P/PHC was unobtainable from MOH financial records. This occurs because of the structure of MOH financial records and the decentralization of many financial decisions to the district and facility level. Instead, use of physical resources at the facilities was recorded and unit costs were used to calculate the cost of resource use.

The combination of these two problems, no a priori notion of full capacity needs, and the inability of MOH records to show current resource use, necessitated the approach used in this study. The study surveyed a random sample of approximately five percent of MOH facilities providing P/PHC to determine their resource use and the extent to which lack of resources constrains their ability to provide P/PHC services. In addition, several facilities which were assumed to be operating without serious resource constraints limiting their provision of P/PHC services were also examined. This survey was then used to develop a detailed description of resource use. The survey also collected financial information that was used to determine the cost of resources used to provide P/PHC.

The survey was designed to determine resource use in several discrete categories representing major components of operations. These were: staff, drugs, other supplies, equipment and maintenance, transport, building maintenance, and in-service training. In addition, information was collected to

determine annual recurrent use of resources and capital investment needs. Copies of the survey instruments are included as an appendix to this report.

Using the survey, current facility resource use to provide P/PHC was determined. To do this, the resources used at each type of facility were enumerated. In some cases, this included a complete accounting of resources, such as staff, vehicles, etc. In other cases, information was collected on a sample of resources representing the general class, such as equipment inventory or drug supply. In these cases, it was assumed that the condition of the equipment or supplies surveyed was indicative of the condition of the entire class of such resources. Second, information about the current gap in some classes of resources was collected. For example, the survey collected information about the length of time a facility was without drugs, or the length of time a vehicle was inoperable. This data was used to develop a statistical description of the amount of resources currently used to provide P/PHC services in existing MOH facilities.

The survey was also implemented at some NGO facilities which are considered to be operating without serious resource constraints, such as Chogoria Hospital, its satellite dispensaries, and Kibwezi Health Center, which is assisted by AMREF. Information from these facilities was collected on the same categories of resources as in the MOH facilities. This data was used to develop a model of resources used to provide P/PHC in facilities operating without resource constraints.

Resource norms were collected from the MOH and from various donor studies to indicate optimal resource use at MOH facilities. Some information from the survey was used not only to determine current resource use, but also to estimate directly the size of the resource gap. For example, the amount of time the facility was out of stock of drugs was used as a direct measure of the drug resource gap.

Depending on the type of information available, the resource and financing gap was estimated by one of several methods. By definition, full capacity resource use minus current resource use equals the resource gap. All that is necessary, therefore, is to determine any two of the three quantities and the third can be calculated. The missing quantity is determined from the two known quantities. Details of these calculations are included in the Analysis section

of the report. Specific categories of resource use were calculated in the following ways.

GAP = FULL CAPACITY - CURRENT USE

This method was used for the categories of staff, building maintenance, and in-service training. In these cases, the gap is unknown, but there are measures of both the full capacity needs and current resource use. Full capacity needs in these cases were determined from MOH standards and previous studies.

FULL CAPACITY = CURRENT USE + GAP

This method was used for the categories of drugs and supplies. In these cases, there are no estimates of full capacity needs, but there are measures of the size of the gap. For example, the amount of time that facilities are short of drugs provides a percentage of full capacity resources which are missing. This information is combined with current resource use to estimate the full capacity needs.

CURRENT USE = FULL CAPACITY - GAP

This method was used for the categories of transport and equipment maintenance. In these two cases, the team was able to obtain information about transport and equipment full capacity needs, and to measure the missing amount of resources in these categories. The method of MOH record keeping made it difficult to determine current resource expenditure, but it could be inferred from the full capacity needs and the resulting gap.

3.0 SAMPLING PROCEDURES

A sampling procedure was adopted which would generate a representative sample of all MOH facilities which could be surveyed given the limited time and resources available to conduct the study. In order to achieve this, a multi-stage stratified sample was developed. Sampling with probabilities proportional to size (SPPS) was used to determine the number of each type of facility to be surveyed in each district. Random procedures were then used to select the individual facilities.

Stage 1: Stratifying by disease patterns

Since the delivery of health care services was to be studied, the country was divided into zones according to major disease patterns and, consequently, health care utilization patterns. These zones correspond closely with the four clearly discernible agro-climatic zones: the Coastal Plains, the Lake Region, the Low Potential Inland, and the High Potential/Highland. Appendix 3, Table A lists the districts in each zone.

Generally, the endemic diseases in the Coastal Plains and Lake Region are malaria and schistosomiasis, while in the High Potential/Highland zone, upper respiratory tract infections predominate. Disease patterns in the Low Potential zone lie between these two.

The first stage of the sampling process involved selecting a sample district from each zone. This was done by assigning numbers to each district in a zone and using the random number table to select one to be surveyed. This resulted in the choices shown in Table 3:

TABLE 3: DISTRICTS IN THE SAMPLE, BY ZONE

ZONE		SAMPLE DISTRICT
1.	Coastal Plains	Kilifi
2.	Lake Region	Busia
3.	Low Potential Inland	Baringo
4.	High Potential Highland	Meru

Stage 2: Choice of Sample Facilities

The facilities to be studied were: provincial general hospitals, district hospitals, health centers, and dispensaries.

One provincial general hospital, out of seven nationwide, was included in the survey. To determine which provincial general hospital (PGH) was to be sampled, the random selection process was applied to the PGHs in the four provinces which encompass the sample districts:

Coast Province
Eastern Province
Rift Valley Province
Western Province

Coast General Hospital was selected.

For district hospitals, the sample included the district hospitals in each of the four sample districts.

In order to select the health centers and dispensaries to be sampled in each district, a stratified sample was drawn keeping probabilities proportional to size (SPPS sampling procedures). This was done in order to give each facility in the country the same probability of being included in the sample. This process was carried out in three steps:

Step 1:

The actual numbers of health centers and dispensaries in the sample districts and the entire country were determined, then the proportions of health centers in each sample district to the total number of health centers in the country were computed. This was also done for dispensaries. (Appendix 3 Table B).

Step 2:

A sample of five percent of MOH facilities was selected. The samples of health centers and dispensaries per district were distributed according to their

proportions in the total sample population. The actual numbers of health centers and dispensaries surveyed are shown in Table 4:

TABLE 4: PROPOSED SAMPLE SIZES FOR HEALTH CENTERS AND DISPENSARIES IN SAMPLE DISTRICTS

AREA	HEALTH CENTERS	DISPENSARIES
Kilifi	2	8
Meru	6	14
Baringo	2	16
Busia	4	4
Total Sample Facilities	14	42

Step 3:

In order to identify the facilities to be sampled, a complete list of all health centers and dispensaries in the sample districts was compiled. (Appendix 3 Table C). Numbers were assigned to each facility in the list and the required number of facilities was selected per sample district using a table of random numbers (Appendix 3 Table D).

Stage 3: Sampling for Full Capacity

The information needed to determine resource consumption at full capacity was collected from a number of sources. MOH records were reviewed and officers of the MOH and other ministries were interviewed in order to determine the services delivered and resources used when the P/PHC system is not suffering from serious resource shortages. Given the constraints the MOH facilities face, it was unlikely that any operate at full capacity. Since most NGO facilities are not constrained by serious resource shortages, a survey of their operations provided useful information on the resource utilization of facilities operating at full capacity. Consequently, the resource utilization survey was also

conducted at Chogoria Mission Hospital and two of its satellite dispensaries. Chogoria Mission Hospital was selected because it is actively involved in providing P/PHC and it has a network of dispensaries and mobile clinics. Kibwezi Health Center in Machakos District was also included as a full capacity facility. Kibwezi Health Center receives, in addition to MOH funding, substantial financial support from AMREF for the delivery of P/PHC.

SURVEY IMPLEMENTATION

The team pretested the survey instruments on May 7, 1990 in Kiambu District. The following facilities were visited:

1. Kiambu District Hospital
2. Ruiru Health Center
3. Gichuru Dispensary
4. Uthuru Dispensary

On May 8, 1990 the pretest was analyzed and the survey instruments were revised.

In the field, the team learned that some of the sampled facilities were not accessible or had been rehabilitated, and consequently were not representative of all MOH facilities. Therefore, the team consulted with the MOH in the districts to select facilities to replace these and maintain a representative sample. Several changes were made in the sample (Appendix 3, Table E 1). A list of the actual facilities surveyed is included in Appendix 3, Table E.

4.0 ANALYSIS PLANS AND RESULTS

This section provides detail on the calculations used in this report. It breaks down those calculations by categories listed in the methodology section. Survey instruments related to each section are included as an appendix to the report.

4.1 DRUG SUPPLY

The drug gap was calculated by measuring the amount of drugs currently received and the quantity of time the facility had stock remaining. These measurements produced estimates of current resource use and the percentage of total need that current stocks covered. Full capacity needs and the gap were computed from these quantities.

Several instruments were used to collect data on the supply of drugs. These included a form for the use of drug kits in the health centers and dispensaries, a form to monitor the availability of drugs in the hospital outpatient departments, and a form to record drugs returned to the district headquarters. The availability of drugs in the health centers and dispensaries was estimated separately from the hospital OPDs because drug kits are used to supply the rural health facilities.

The MOH uses a large variety of drugs, and a complete census of the drugs used by these facilities was not feasible. Instead, a representative sample of 12 drugs was selected to be surveyed (see instruments 15 and 17, Appendix 6). This sample was chosen to be representative of the stock of drugs used by the MOH for P/PHC. As a group, they satisfy the following conditions.

(a) Drugs that address the most common conditions as listed in the "National Guidelines for the Implementation of Primary Health Care in Kenya". These include conditions such as anemia, diarrhoeal diseases, respiratory infections, worms, conjunctivitis, and others.

(b) Drugs that address specific elements of primary health care, such as chloroquine for the control of malaria.

(c) Drugs that are available at both the dispensary and health center levels.

(d) Drugs that are the most necessary and most frequently used in these facilities.

Essential drug kits are delivered to rural health facilities approximately monthly. The amount of drugs in a kit is estimated for a monthly workload of 3,000 cases in a health center and 2,000 cases in a dispensary. Health centers and dispensaries each receive two drug kits, a drug kit I, and either a kit IIA or IIB. The major difference in the composition of drug kit IIA and IIB is that kit IIA has more chloroquine for malarial areas, and kit IIB contains more antibiotics. Health center kits contain a larger inventory of drugs. The combined health center drug kits consist of about 40 items, whereas the dispensary drug kits consist of about 31 items.

Hospital OPDs are not currently supplied on a kit system, but rather receive periodic deliveries from the MOH. A pilot scheme of supplying core essential drugs to hospital OPDs stopped in mid-1988 after one and a half years of operation. The same drugs were sampled from hospital OPDs, but the gap calculations differed somewhat.

For both hospitals and rural health facilities, the first four steps in the calculation of the drug gap were:

1. Determine the amount of time each drug was in stock in the facility. The proportion of time each of the sample drugs was available was determined by subtracting the date the drug was depleted from the arrival date of the previous drug kit. This was divided by the number of days between the arrival of the kit and the date of the arrival of the next drug kit. For each drug:

$$D_i = \frac{\text{date depleted-date previous drug kit arrived}}{\text{date of current kit - date of previous kit}} = \frac{\text{days in stock}}{\text{days between kits}}$$

where D_i is the proportion of time drug i was in stock.

2. Using the unit prices for these 12 drugs and the quantities contained in the drug kits, the proportion of the value of each drug to the total value of the sample, C_i, was computed as:

$$C_i = \frac{P_i Q_i}{\Sigma P_i Q_i}$$

where P_i is the unit price of drug i and Q_i is the quantity of sample drug i in the kit.

These proportions were used as weights in the computation of the weighted average. For the hospital OPD, the unit cost of the drugs was multiplied by the quantity used in the OPD during the reporting period.

3. The information from steps 1 and 2 was used to calculate the weighted average time that the facility had the 12 sample drugs in stock. This average was calculated as:

$$P = \Sigma\ D_i\ C_i$$

These weighted averages were assumed to correspond to the average amount of time that the facility's entire drug supply would last. This was computed separately for hospitals, health centers, and dispensaries. The average amount of time that the facility drug supply was in stock was:

Hospitals	69%
Health Centers	85%
Dispensaries	78%

It is interesting to note that the MOH, while reporting actual deliveries of kits, also estimates that their target for kits was approximately 15% higher than the number they were able to deliver. It is not known why the essential drugs program was unable to produce its target number of kits.

4. Given the average amount of time the facility drug supply lasted, the next step was to expand the current drug supply by an amount sufficient to provide the facility with drugs 100% of the time. To do this, it was necessary to determine the total quantity of drugs being received by the facilities. For health centers and dispensaries the distribution of the drug kits is indicated in Table 5. This table also shows the unit cost of each kit reported by the MOH.

Table 5. Distribution of Drug Kits

Kit type:	Present monthly supply (1.10.89)	Unit Cost of Each Kit (Ksh)
HC1	557	6,027
HC2A	469	8,620
HC2B	88	9,448
D1	1023	2,742
D2A	839	5,318
D2B	184	4,840

The cost of drugs for the health centers and dispensaries was calculated by dividing the annual (monthly times 12) number of kits by 85% for health centers and 78% for dispensaries, and then multiplying those quantities by the reported cost of the kits.

$$\text{Drug need in kits} = \text{current kits received in health centers or dispensaries per year} \times \frac{1}{P} = N$$

Drug gap in kits = N - number of kits received in health centers or dispensaries per year

Finance gap = drug gap in kits x cost of drug kit

These calculations produced the following results:

Full Capacity drug kit needs:	KSh. 240,542,000
Current drug kit expenditures:	196,664,000
Financing gap in drug kits:	43,879,000

5. For hospital OPDs, an additional step was required to separate inpatient drug usage from outpatient usage. In the absence of an OPD drug supply list, the following steps were undertaken to derive the current funding and financial gap with respect to the drug supply for hospital OPDs.

a) The drugs used for outpatients were identified from the Pharmaceutical Requirement (catalogue) Summary Tables of 1989/90 provided by the Central Medical Stores for hospital drug supply with the assistance of the Chief Pharmacist.

b) The amounts of these drugs which are used for inpatient care and for treatment of specialized cases were determined with the assistance of the pharmacists in the sampled hospitals, and were excluded from the list of drugs used for P/PHC.

The resulting quantity of drugs was assumed to be used for P/PHC. To determine the cost of P/PHC drugs in the OPD, these quantities were multiplied by their unit costs. This cost was divided by the reported cost for the total hospital drug supply. This calculation showed that approximately 37% of the total expenditure for the hospital drug supply goes to outpatient services, while about 63% is used for inpatients and specialized clinics.

Using the assumptions described above, it was determined that KSh. 79 million is currently being used for P/PHC drugs in hospital OPDs per year. This was divided by .692 to determine the total cost of drugs that would be needed for the hospital outpatient department to operate at full capacity. Total needed expenditure was KSh. 114 million.

Results of the calculations discussed above are presented in Table 6.

Table 6. Drug Expenditure Needs

Facilities	Current (million KSh.)	Full (million KSh.)	Gap (million KSh.)
Health centers and dispensaries	196.7	240.5	43.9
OPDs	79.0	114.2	35.2
TOTAL	275.7	354.7	79.1

4.2 EQUIPMENT INVESTMENT AND MAINTENANCE

The gaps in equipment investment and maintenance were derived using a sample of the equipment in the facilities. The equipment survey form details the list of equipment sampled. Using sets of MOH norms, recent construction records of hospitals and health centers, and maintenance estimates from other studies, the full capacity needs of these facilities were determined. Gaps were then identified in both investment and maintenance in the equipment sampled. On the basis of the ratio of equipment sampled to total facility equipment inventory, we inferred the condition of the current stock of equipment and the financial gap.

Investment Gap:

To determine the gap in equipment inventory, the difference between full capacity and current inventory was determined in the equipment sampled. The value of this missing equipment was then divided by the value of the full capacity amount of the equipment sampled. This proportion was then applied to the estimated cost of all equipment in a facility to determine the financial gap for equipment. Details of these calculations are discussed below.

Define N_{ij} as the full capacity inventory of equipment i that should be found in facility j. This was determined from recent equipping of MOH hospital

OPDs, health centers, and dispensaries. Let A_{ij} be the actual number of equipment i in facility j, including both equipment that is working and equipment that is not working but reparable. The purchasing gap (PG_{ij}) for equipment i in facility j is:

$$PG_{ij} = N_{ij} - A_{ij}$$

These gaps for individual equipment categories were converted into a financial purchasing gap (FPG) for the sample equipment per type of facility by multiplying APG_i by the purchase cost R_i of equipment i and summing over the sample of equipment, i.e.:

$$FPG_j = \Sigma_j \ (PG_{ij} \ R_i)$$

To determine the proportional size of the gap in facilities of type j, we divided this financial gap by the cost of the full capacity inventory of our equipment sample. Full capacity funding for the sample equipment (FCF) in a facility was calculated as:

$$FCF_j = \Sigma_j \ (N_{ij} \ R_i)$$

The proportional gap per facility for the total sample of equipment was then calculated as:

$$PGAP = (FPG/FCF) \times 100.$$

With this determination of the proportional gap, the total cost for all equipment (rather than our sample equipment) in a facility was calculated using the estimated cost of the entire facility equipment inventory.

Total financial gap = PGAP x total equipment cost

When these calculations were performed, it was found that some current equipment inventory exceeded the norms. For example, in dispensaries, benches and blood-pressure machines exceeded the number required for facilities operating at full capacity. These excesses were calculated as reductions of the gap, on the assumption that they could either be redistributed or that they would allow the facility stock to last longer.

The total value of the gap in equipment sampled in dispensaries was found to be KSh. 128,331 per facility. The full capacity funding of the sampled equipment was KSh. 217,146 per dispensary. This is a 59 percent purchasing gap.

A dispensary should be equipped with KSh. 350,000 worth of equipment. Since there are 850 dispensaries in the country, the value of the full capacity equipment in these dispensaries is (KSh. 350,000 x 850) = KSh. 297.5 million. Therefore the equipment purchasing gap for all dispensaries is KSh. 297.5 million x 59%) = KSh. 175.5 million.

The survey showed that health centers are better equipped than dispensaries. The inventory of some equipment, including baby and adult weighing scales, refrigerators, gas cookers and steam sterilizers exceeded the full capacity inventory. The value of the gap in sampled equipment missing was Ksh. 132,151 per health center. The full capacity requirement for the sample equipment was Ksh. 367,848. Therefore the gap was equal to 36% of the full capacity requirement per health center for the sample equipment.

A health center should be equipped with KSh. 700,000 worth of equipment. There are 310 health centers in the country. The value of equipment in these health centers ought to be (KSh. 700,000 x 310) = Ksh. 217 million. The equipment purchasing gap for all health centers is (KSh. 217 million x 36%) = KSH. 78.1 million.

Because hospital equipment is used for both inpatient and outpatient work, an adjustment factor was applied to determine the hospital OPD equipment purchase gap. The full capacity inventory of equipment for a hospital is worth KSh. 24,994,000. (Isiolo and Msambweni district hospitals were used as representative cases). The survey showed that on average an OPD occupies about 13.8% of hospital space. Assuming a proportionate relationship between hospital space and equipment value, an OPD should have equipment worth Ksh (24,994,000 x .138) = Ksh. 3,449,172.

The survey of hospital OPD equipment revealed that some types of equipment are often lacking. The total value of sampled OPD equipment missing was KSh. 446,790 per OPD. The full capacity value of sampled OPD equipment was KSh. 1,933,086 per OPD. Therefore the gap was 22% of the full capacity value of the OPD equipment. Since there are 82 hospitals, including PGHs, in the country, equipment worth (KSh. 3,449,172 x 82) = KSh. 282,832,104 is required for all OPDs

to operate at full capacity. Therefore the equipment gap for hospital OPDs is (KSh. 282,832,104 x 22 %) = KSh. 62,223,063.

The equipment investment gaps for each category of facility are summarized in Table 7.

TABLE 7: SUMMARY OF EQUIPMENT INVESTMENT GAPS BY FACILITY CATEGORY

FACILITY CATEGORY	VALUE OF FULL CAPACITY EQUIPMENT Ksh.	GAP IN PERCENTAGE TERMS	GAP IN FINANCIAL VALUES KSh.
(1)	(2)	(3)	4=(2x3)
Hospital OPD	282,832,000	22	62,200,000
Health Center	217,000,000	36	78,100,000
Dispensary	297,500,000	59	175,500,000
TOTAL	797,332,000	-	315,800,000

The total equipment investment gap for all facilities in the country is KSh. 315.8 million. The study did not estimate the equipment rehabilitation gap because the team did not have adequate expertise. This gap is an underestimate because it does not include the additional cost of rehabilitating P/PHC equipment.

Maintenance Gap:

Full capacity equipment maintenance cost was estimated using the Ministry of Public Works estimates of the percentage of purchase price that should be expended on annual maintenance of equipment. Let N_i be the percentage of the purchase price (C_i) needed to repair and maintain equipment per annum. Then the full capacity maintenance cost per facility, FCMC, for the set of equipment sampled by the survey will be:

$$FCMC = \Sigma (N_i C_i)$$

To determine the total full capacity maintenance cost, TFCMC, (for all equipment rather than for sample equipment) for a given type of facility, FCMC was scaled

up by the ratio of two quantities determined in the inventory calculations: the total value of equipment, FCF, to the value of our sample of equipment, FPG.

$$TFCMC = FCMC \times (FCF/FPG)$$

The equipment maintenance gap per category of facility is:

$$(TFCMC \times N) - AME$$

where N is the number of facilities in the country in a given facility category and AME is the actual equipment maintenance expenditures in all facilities in that category. The gap for facilities throughout Kenya was calculated by totaling the gaps for the various categories of facilities.

The full capacity maintenance cost for dispensaries for the sample equipment was Ksh. 2,912 per dispensary. This cost is (KSh. 2,912 x 850)/ 59%) = KSh. 4.2 million for all equipment in dispensaries. For health centers, the full capacity maintenance cost for sample equipment was (KSh. 8,061 x 310)/ 36% = KSh. 6.9 million for all equipment in all health centers.

In the case of the hospital OPD, the equipment inventory was adjusted by the ratio of equipment in the OPD to the amount of equipment in the entire hospital, 0.138. The full capacity equipment maintenance cost for hospital equipment was found to be Ksh. 45,752 per hospital OPD for the sample equipment. Thus the maintenance gap for all 82 hospitals was found to be (45,752 x 82 x 0.138) / 22% = KSh. 2.4 million.

The full capacity maintenance cost of all equipment in all facilities is (Ksh. 4.2m + Ksh. 6.9m + Ksh. 2.4m) = Ksh. 13.5 million. The MOH is currently spending KSh. 6.3 million on equipment maintenance. Therefore the annual equipment maintenance gap in all facilities in the country is (KSh. 13.5 m - KSh. 6.3 m) = Ksh. 7.2 million.

4.3 IN-SERVICE TRAINING

The MOH has an extensive program of in-service training for its staff. This includes a variety of courses in P/PHC activities. The additional training identified in this study includes: KEPI, CDD, FP, Planning and Management, Essential Drugs, Water Supply and Sanitation, and PHC. Two distinct training

gaps were identified and calculated. There is a one-time cost of providing training for current staff who do not have the full complement of training, and there is an annual cost of providing training for new entrants into the MOH each year. The first is part of the one-time investment gap and the second is part of the annual recurrent expenditure gap.

To determine the cost of training, the directors of departments organizing these courses were interviewed to obtain the cost of each training course. These costs are shown in Table 8.

A list of staff categories involved in delivery of P/PHC and subject to in-service training needs was obtained by identifying the MOH personnel who are involved in the provision of P/PHC services. In hospitals, only staff working in the OPD (excluding specialized clinics) were considered. All staff working in health centers and dispensaries were considered.

Table 8 In-Service Training Costs

Course	Duration	Workshop Size	Cost of Workshop Ksh.	Cost per Participant KSh.
FP(basic)	7 weeks	20	300,000	15,000
Planning and Management	5 days	30	101,000	3,367
Water and Sanitation	10 days	25	150,000	6,000
CDD (operational and mid-level)	6 days	25	120,000	4,800
KEPI (operational and mid-level)	10 days	25	107,000	4,280
PHC	2 weeks	25	101,000	4,040
Essential drugs	5 days	40	90,000	2,250

Source: Division of Family Health
AMREF
PHC unit

In-Service Training Gap For Existing Staff

To obtain the resource gap for in-service training, the actual number of staff in each of the cadres was determined from the sampled facilities. These staff were interviewed using the training questionnaire in the appendix to determine the status of in-service training among the current staff. Results were compared against training norms to determine additional training needs per type of facility.

With information on additional training needs per facility and the cost of training, detailed above, the in-service training gap per course was calculated as follows:

Total number of staff not trained for course x cost/participant

The total in-service training gap per course is obtained by multiplying the average training gap per facility by the total number of facilities. Table 9 summarizes the in-service training investment gap by course.

Table 9: Financial Gap by Course

Course	Gap (Ksh. 000)
Family Planning	10,000
Planning and Management	2,731
Water and Sanitation	4,484
CDD	3,270
KEPI	2,625
PHC	2,893
Essential Drugs	1,200
TOTAL	27,273

Thus, a one-time expenditure of Ksh. 27,273,000 is required to provide in-service training to all staff who have not received such training.

In-service Training Gap For New Employees

New staff employed by the MOH require in-service training in order to effectively provide P/PHC. Total in-service training cost and the training gap for these staff were calculated as follows:

a) The number of staff involved in the provision of P/PHC who are hired by the MOH each year was determined. These personnel are listed in Table 10.

Table 10: Number of new entrants to the ministry annually for selected cadres

Cadre	Number
Doctor	160
Clinical Officer	105
Dentist	19
Pharmacist	33
Pharmaceutical Technologist	41
Enrolled Community Nurse	634
PHO	30
PHT	220
Occupational Therapist	31
Community Nutrition Technician	45
Community Oral HEO	10
HEO	12
Physiotherapist	40
Lab Technician	177
Medical Records Officer	45

b) The courses that are required for each cadre were identified by the relevant training directors. This determined the annual training needs by course.

c) The number of persons trained annually in each course was obtained. Where this was not available, it was assumed that the course covered the average percentage of need covered by other courses. This was about 87% of needed coverage.

d) The number of staff requiring but not receiving training (the training gap) was determined for each course by subtracting c) from b).

e) The total financial needs for all courses were obtained by multiplying per person cost by the training needs identified in b). This total was KSh. 47.3 million.

f) The cost of the annual in-service training gap was determined by multiplying the staff identified in d) by the cost of each course. This financial gap of KSh. 5.1 million is shown in Table 11.

The annual financial gap for each in-service training course is summarized in Table 11.

Table 11: Total Annual Financial Gap by Course

Course	Annual Cost (Ksh.000)
Family Planning	593
Planning and Management	571
Water and Sanitation	966
CDD	0
KEPI	1,828
PHC	811
Essential Drugs	299
TOTAL	5,067

4.4 BUILDING MAINTENANCE

Due to the underfunding of building maintenance over time many facilities require major repairs or rehabilitation. More than a third of the hospitals surveyed needed either major repairs or rehabilitation of walls, painting, windows, and doors (Table 12). The electrical and plumbing systems of 40 - 60 percent of the health centers were either not usable or needed major repairs. As is clear from Table 12, many dispensaries also required rehabilitation and major repairs particularly for plumbing, walls, painting, roofs, ceilings, windows, and doors. This study did not

TABLE 12: REPAIR CONDITIONS OF HEALTH FACILITIES

	% of the Facilities with Repair Needs														
	Hospitals					Health Centers					Dispensaries				
	Needs No Repairs	Needs Minor Repairs	Needs Major Repairs	Needs Rehabi-litation	Unus-able	Needs No Repairs	Needs Minor Repairs	Needs Major Repairs	Needs Rehabi-litation	Unus-able	Needs No Repairs	Needs Minor Repairs	Needs Major Repairs	Needs Rehabi-litation	Unus-able
1. Roof/Ceiling	16.7	66.7	16.7	0.0	0.0	33.3	53.3	6.7	6.7	0.0	31.1	33.3	20.0	15.6	0.0
2. Walls/Painting	33.3	33.3	16.7	16.7	0.0	40.0	53.3	0.0	6.7	0.0	13.3	37.8	35.6	13.3	0.0
3. Plumbing	16.7	33.3	16.7	0.0	0.0	25.0	16.7	41.7	16.7	0.0	23.1	53.8	15.4	7.7	0.0
4. Windows/Doors	16.7	50.0	33.3	0.0	0.0	33.3	40.0	26.7	0.0	0.0	13.3	53.3	20.0	11.1	2.2
5. Electrical System	50.0	33.3	16.7	0.0	0.0	20.0	40.0	20.0	20.0	0.0	75.0	0.0	0.0	25.0	0.0
6. Drainage	66.7	16.7	16.7	0.0	0.0	30.8	30.8	23.1	7.7	7.7	47.1	35.3	5.9	11.8	0.0
7. Foundation	66.7	33.3	0.0	0.0	0.8	60.0	20.0	20.0	0.0	0.0	26.7	37.8	20.0	13.3	2.2
8. Sanitary system	0.0	16.7	83.3	0.0	0.0	33.3	20.0	26.7	13.3	6.7	24.4	33.3	13.3	22.2	6.7
9. Fencing/Compound	16.7	33.3	16.7	33.3	0.0	50.0	33.3	8.3	8.3	0.0	19.5	14.6	14.6	19.5	31.7
10. Other Systems	0.0	0.0	100.0	0.0	0.0	0.0	33.3	0.0	33.3	33.3	0.0	30.8	23.1	38.5	7.7

estimate the cost required to rehabilitate or undertake major repairs of the buildings. A professional assessment by an architect is required to develop a reasonable estimate.

The gap in building maintenance was calculated by comparing the actual allocation for repair and maintenance of MOH facilities to the estimated cost of adequate building maintenance. The following steps were used to compute the gap:

1. Actual allocation for repair and maintenance of existing health facilities was obtained from the 1988/1989 Printed Estimates (recurrent). These, which were completely expended, were:

Type	Allocation (KSh.)
Health Centers, Dispensaries and Rural Demonstration Centers.	2,100,000
District Hospitals	1,000,000
Provincial General Hospitals	240,000

2. The value of dispensaries, health centers, district hospitals, and provincial general hospitals was determined, based on the current average cost of constructing each of these facilities. These estimates, obtained from the MOH, were:

Estimated Average Cost of Constructing a Facility (1989)

Type	KSh.
Dispensary (Type D_1)	1.5 million
Health Center	8.0 million
Hospital	50.0 million

3. For hospitals, the ratio of OPD floor space to total hospital floor space was used to apportion hospital repair and maintenance costs to P/PHC. From the hospitals sampled, OPDs constitute 14.1 percent of the total District Hospital space and 13.5 percent of Provincial General Hospital (PGH) floor space.

4. Recommended annual expenditures for repair and maintenance of buildings were estimated by the Ministry of Public Works. According to the Ministry

of Public Works two percent of the cost of building a health facility should be used annually to maintain it.

5. For Hospital OPDs:

   (a) current expenditures for building maintenance for the OPD = amount allocated to hospital building maintenance x average proportion of OPD floor space to the hospital floor space

   (b) Recommended Cost of Building Maintenance = Number of hospitals x (average cost of building a hospital x .02) x (average OPD floor space / total hospital floor space)

   (c) Gap in building maintenance for OPD = (b) - (a)

6. For rural health centers and dispensaries:

   (a) current expenditures for building maintenance for RHFs = amount allocated to RHF building maintenance

   (b) recommended cost of building maintenance = number of RHFs x (average cost of building a RHF x .02)

   (c) Gap in building maintenance for RHF = (b) - (a)

The total recurrent expenditure required annually to maintain health facilities was found to be Ksh. 86,620,000. However, the actual allocation for 1988/89 FY was Ksh. 3,340,000, leaving a gap of Ksh. 83,280,000 (see Table 13). Note that this is the annual cost of maintenance, and that it excludes the financial resources needed to rehabilitate and repair existing buildings in order to upgrade them to required standards.

TABLE 13: SUMMARY OF BUILDING MAINTENANCE GAP: 1988/89

Type of facility	Actual Allocation KSh.	Requirements KSh.	Gap KSh.
Dispensaries and Health Centers	2,100,000	850 x 1,500,000 x 2% + 310 x 8,000,000 x 2% = 75,100,000	73,000,000
District/ Sub-District Hospitals	1,000,000	75 x 50,000,000 x 14.1% x 2% = 10,575,000	9,575,000
Provincial General Hospitals	240,000	7 x 50,000,000 x 13.5% x 2% = 945,000	705,000
TOTAL	3,340,000	86,620,000	83,280,000

4.5 PERSONNEL

Provision of P/PHC services at full capacity depends on the availability of staff. Currently the MOH employs over 45,000 staff and spends approximately 60% of its recurrent budget on personnel emoluments.

Although changes in staff were not contemplated by the study scope of work, this survey found that many of the staff positions were vacant. Therefore, the study calculated the cost of bringing the staff levels up to MOH norms. The first step in estimating this gap was to develop a list of cadres of staff involved in the delivery of P/PHC. This list was developed by first consulting the MOH master list of all MOH personnel and determining which were involved in the provision of P/PHC.

Current Staff Costs:

The actual number of personnel working in the OPD, health centers, and dispensaries was obtained by interviewing the directors of the sampled facilities. The job group for each cadre and the hours worked in the OPD were also collected.

The following calculations were used to obtain the current costs of each cadre of personnel in health centers, dispensaries, and hospital OPDs (except for Hospital Secretaries, Lab Technologists/Technicians, Medical Records Officers, Clerks, Drivers, Subordinate Staff and Secretaries).

1. For each cadre and each category of facility (health center, dispensary, or OPD):

   Actual staff cost in a cadre = (job group's mid-point salary + house allowance) x number of staff in the cadre in the sample facility.

2. Average staff cost for all facilities in a category = sum of staff cost for a facility category divided by the number of sampled facilities in that category.

3. Total staff cost for each category of facility = facility cost x number of facilities in the category nationwide.

4. In the case of the hospital OPDs, the following adjustments were made:

   i) For Lab Technologists/Technicians the staff costs were apportioned to the OPD based on the percentage of time this cadre spends on tests for the OPD.

   ii) The actual cost of drivers was calculated by adjusting the norm for hospital drivers by the percentage of vehicle time used to provide P/PHC services.

   iii) The actual costs of other support staff such as the Hospital Secretaries, Medical Records Officers, Clerks, Secretaries, and other support staff were calculated by adjusting staffing norms by the

proportion of time they provide administrative services to the OPD and the Rural Health Facilities (RHFs).

iv) The total actual staff cost per hospital OPD = $\text{sum}_{\text{medical cadre}}$ + cost $_{\text{lab staff}}$ + cost $_{\text{drivers}}$ + cost $_{\text{support staff}}$.

5. Total actual cost of district personnel providing P/PHC
= Total staff cost $_{\text{OPD}}$ + total staff cost $_{\text{health centers}}$
+ total staff cost $_{\text{dispensaries}}$

Full Capacity Staff Costs

Staffing norms were developed by the MOH in 1987. Because these were considered more representative of full capacity than vacant positions, which were often not available anyway, these were used as a basis for determining the staff needed to provide P/PHC at full capacity in the OPD, health centers, and dispensaries. These norms are shown in Table 14.

The following methodology was used to determine the full capacity staff resources:

1. For the OPD, ratios given in the staffing norm for staff per volume of patients were combined with patient attendance statistics to determine the number of staff per cadre who should be working in the OPD. For health centers and dispensaries the number given in the staffing norm was defined as full capacity.

2. The full capacity staff cost for each facility category was calculated using the same process described for calculating current staff cost. However, full capacity norms were used instead of the current staff levels in the calculations.

3. The cost of the total personnel gap = total full capacity staff cost in the country minus the total actual staff cost in the country.

In addition to salary and house allowance (PE), staff are entitled to other benefits (OPE) such as leave, travel, accommodation, bicycle, motorcar, and staff uniform allowances. A proportion of other personnel emoluments (OPE) to personnel emoluments (PE) for districts sampled was calculated from the 1989/90 Printed Estimates. The gap obtained in step 3 above was adjusted by the OPE/PE factor to calculate the total national personnel gap.

Table 15 summarizes the annual actual and full capacity costs for personnel in each type of category. It also shows the financial gap for each facility category.

The total staff resource gap of 8.5 million Pounds is Ksh. 170.5 million. This equals 20.6% of the MOH expenditure on total staff costs. The greatest shortage of personnel for provision of P/PHC was in PGHs, followed by health centers, dispensaries, and district hospitals.

However, the study found that the shortage does not necessarily mean that more staff should be employed. Some of the staff gaps could have been alleviated through redistribution of staff from some facilities that have more staff than the full capacity requirements to those with shortages. For example, the study found that health centers had an excess of PHTs, while dispensaries were below norms.

Table 14: STAFFING NORMS

	DISP	HCs	MOMBASA PGH	MERU HOS.	BUSIA HOS.	KILIFI HOS.	KABARNET HOS.
Doctor			0	0	0	0	0
Clinical Off.		1	30	17	9	11	7
Dentist			0	0	0	0	0
Dental Tech.			0	0	0	0	0
Pharmacist			4	3	2	2	2
Pharmaceutical Tech.			18	17	9	11	7
Registered Nurse			0	0	0	0	0
Enrolled Nurse	3	9	54	30	15	21	12
PHO		1	2	1	2	1	2
PHT	1	1	5	3	3	5	1
Occ. Therapist			8	5	2	3	2
Nutrition Officer			3	2	1	1	1
Nutrition F.W.			4	4	8	4	5
Community Oral H.E.O.			1	1	1	1	1
H.E.O.			1	1	1	1	1
F.H.F.E.		2	2	3	2	2	3
Medical Social Worker			6	3	2	2	1
Physiotherapist			12	7	3	4	2
Hospital Secretary			6	3	2	2	1
Lab Technologist			14	11	5	7	5
Lab Technician		1	26	16	11	11	7
Medical Record Off.			4	3	1	2	1
Clerk		2	20	11	5	8	4
Driver		1	9	9	6	6	14
Sub. Staff	2	8	174	98	47	96	34
Secretarial Staff			6	5	3	5	3

Table 15: Personnel Gap
(All Costs in Kenyan Pounds 000s)*

Category of facility	Actual costs K£,000	Ideal costs K£,000	Gap K£,000	% Total Gap	Gap as % of actual
PGH	2,797	4,688	1,890	22.2	67.5
Hospitals	20,028	22,615	2,587	30.3	12.9
Health Centers	9,507	12,000	2,494	29.3	26.2
Dispensaries	5,945	7,499	1,554	18.2	26.1
Total	38,277	46,802	8,525	100%	

* 20 Shillings = 1 pound

4.6 TRANSPORT INVESTMENT AND MAINTENANCE

The resource gap in transport is due to two factors: inadequate supply of working vehicles; and insufficient maintenance of the existing fleet of vehicles. The calculations for computing the transportation gap follow.

Vehicle Investment Gap:

The minimum fleet of vehicles required to operate a district hospital includes one vehicle for each of the following services:

1. Ambulance
2. Utility Vehicle (for supplies)
3. Rural Health
4. MCH/FP - KEPI
5. Administration (staff car)
6. General duties (utility vehicle)
7. Public Health (motorcycle)

For the purposes of this study, the full capacity requirement for vehicles at a hospital is assumed to be six "Standard" motorcars and one motorcycle. Health centers were assumed to require one motorcar and one motorcycle. KSh.377,000 was used as a representative replacement cost for a "Standard" motorcar. This approach is similar to that used by T. P. O'Sullivan and Partners in the "Vehicle Fleet Assessment Study, Kenya, May 1989" done for the Forestry Department, in which the price of a new light vehicle (all categories including 4 x 4) was KSh. 300,000.

The shortage of vehicles can occur because either 1) vehicles have not been purchased or are grounded and not reparable or 2) vehicles which are reparable at a reasonable cost are not repaired. Therefore, the resource gap consists of an investment gap required to expand the existing fleet and an annual maintenance gap to repair and maintain the fleet. These gaps were calculated as follows:

Although a hospital should have a minimum of six motorcars and one motorcycle, the survey found that hospital motorcars were used 49% of the time in P/PHC activities. Therefore, it was assumed that 2.94 vehicles (i.e. 6 x 0.49) should be available for P/PHC activities in hospitals. Since all services of the health centers are for P/PHC, 100 percent of vehicle time was considered

to be for P/PHC services. Since motorcycles are used primarily for the delivery of P/PHC, the time the motorcycle was used was not apportioned between curative and P/PHC services.

The survey showed that on average hospitals had 5.5 motorcars and 1.75 motorcycles which were operating. Health centers had .93 motorcars and .4 motorcycles which were operating. In addition, hospitals had 3.75 motorcars and 1.70 motorcycles which were reparable. Since hospitals and health centers had an adequate inventory of running and reparable vehicles, the vehicle purchasing gap is zero. However, in order to upgrade the fleet of operating vehicles to standard, hospitals need to rehabilitate .5 motorcars and health centers need to rehabilitate .07 motorcars. In addition, health centers need to rehabilitate .6 motorcycles. Given the history of vehicle assignment and use in the MOH, it was not considered feasible to reallocate some of the operating motorcycles from hospitals to health centers.

According to the O'Sullivan and Partners report cited above, it is estimated that it costs KSh. 78,000 to rehabilitate a motorcar and KSh. 12,000 to rehabilitate a motorcycle. Using these cost estimates, the total cost of the P/PHC vehicle investment gap is the total of the hospital vehicle rehabilitation needs and the health center vehicle rehabilitation needs.

Hospital motorcars:

KSh. (.5 x 78,000 x 82 x .49) = KSh. 1,567,020

Health center motorcars:

KSh. (.07 x 78,000 x 310) = KSh. 1,692,600

Health center motorcycles:

KSh. (.6 x 12,000 x 310) = Ksh. 2,232,000

The total investment gap is:

KSh. 1,567,020 + KSh. 1,692,600 + KSh. 2,232,000
= KSh. 5,491,620

Vehicle Maintenance Gap

The motorcar maintenance gap in sample hospital j (HMG_j) was:

$$HMG = FCM_j - AMC_j$$

Where FCM_j = annual cost of maintaining the minimum fleet required by the hospital

AMC_j = the amount currently spent on operating motorcars by a hospital. If the number of operating vehicles exceeds the norm, then AMC is adjusted to the maintenance requirements for the norm.

To obtain the average hospital maintenance gap (AHMG) for the sample hospitals, HMG was summed over all hospitals surveyed and divided by the number of hospitals in the sample (n). The total annual hospital maintenance gap (THMG) was obtained by multiplying AHMG by the number of hospitals in the country (N).

$$AHMG = \Sigma \frac{HMG_j}{n}$$

$$THMG = AHMG \times N$$

The vehicle maintenance gap for P/PHC (PHMG) was determined by adjusting the THMG by the proportion of vehicle time used for P/PHC.

The same method used to calculate the vehicle maintenance gap for hospitals was applied to health centers. However, 100 % of vehicle utilization in the health centers was apportioned to the provision of P/PHC.

According to the O'Sullivan and Partners report cited above, it is estimated that it costs KSh. 60,000 to maintain a motorcar and KSh. 9,000 to maintain a motorcycle annually.

A hospital should have a minimum of six motorcars and one motorcycle. Given that a motorcar is used 49% of the time in a hospital for P/PHC activities, 2.94 (i.e. 6 x 0.49) of these motorcars should be available for P/PHC activities.

Since it costs Ksh.60,000 per annum to maintain a motorcar, a hospital should be spending Ksh.176,400 to maintain motorcars providing transport services to P/PHC.

Each hospital should spend Ksh. 9,000 per annum to maintain the required number of motorcycles. For the 82 hospitals countrywide, the full capacity maintenance cost for P/PHC transport is the sum of the full capacity maintenance cost for vehicles and motorcycles, i.e. Ksh.(176,400 x 82) + (9,000 x 82) or Ksh. 15,202,800 per annum.

A health center should have a minimum of one motorcar and one motorcycle. Therefore, each health center should spend KSh. (60,000 + 9,000) = KSH. 69,000 annually to maintain its fleet of vehicles. KSh. (69,000 x 310) = KSh. 21,390,000 should be spent by all health centers in the country.

The full capacity maintenance costs for P/PHC transport services for the health centers and hospitals are Ksh. 21,390,000 and Ksh. 15,202,800 respectively. Hence the full capacity maintenance cost for all facilities is Ksh. 36,592,800. Currently, the Ministry of Health is spending only Ksh. 19,280,000 to maintain motorcars and motorcycles. Therefore, the vehicle maintenance gap is KSH. (36,592,800 - 19,280,000) = KSh. 17,312,800.

4.7 SUPPLIES AND UTILITIES:

The term "supplies" includes several components: utilities, malaria control supplies, supplies for non-curative care outreach contacts, and other supplies. In the MOH recurrent expenditure estimates the following account codes are used for utilities and other supplies:

a) Utilities:

121 - Telephone service
141 - Electricity supply
142 - Water supply
143 - Conservancy service

b) Other Supplies:

144 - Gas fuel supplies
145 - Other fuel supplies
153 - Non-scheduled drugs
154 - Oxygen, sera, vaccines
155 - X-ray supplies
165 - Doctors' and Nurses' food
174 - Stationery
177 - Cleaning materials

Malaria control supplies include larvacides, insecticides, and laboratory supplies. Patients' food at the health centers was included in the supplies category because it is served primarily to maternity care. In addition, some special materials were needed for non-curative care outside of facilities. The gaps for utilities and other supplies were estimated as follows:

Utilities Gap

For health centers and dispensaries the full capacity budget requirement was inferred from the annual utility bills recorded by the MOH Accounts Department. Although some machinery may not have been operating, lighting and water would still have been used at full capacity. The bills were averaged for the RHFs in the districts surveyed and extrapolated over all districts in the country.

FC_{RHF} =(Σ BRHFDi)/n x N
=Ksh.(5,296+68,350+33,278+46,592) /4 x 42 = KSh. 1,611,918.

FC_{RHF} = Full capacity funding for RHFs
BRHFDi = Utilities bill for RHFs in district i
n = Number of districts sampled
N = Number of districts in the country

Current-level budget utilization for RHFs (CL_{RHC}) was calculated by summing the current expenditure (E) over the districts surveyed, calculating the average expenditure per district, and extrapolating it over all districts in the country.

$CL_{RHF} = (\Sigma\ E_{RHFi})/n \times N$

=KSh.(11,610 +21,363 +8,394 +27,259) /4 x 42 = KSh. 720,594

The financial gap = FC_{RHF} - CL_{RHF} = KSh. 1,611,918 - 720,594 = KSh. 891,324

The remainder of utility bills have accumulated as a bad debt from one government agency to another.

For district hospital OPDs, the full capacity budget requirement was obtained from the annual utility bills recorded by the MOH Accounts Department. The bills were averaged for the sample district hospitals and then the average was extrapolated over all district hospitals in the country.

$FC_{DH} = (\Sigma\ B_{DHi})/n \times N_{DH}$ = KSh.(155,908+172,878+228,177+142,017)/4 x 82

= KSh. 14,329,090

Current-level budget utilization for district hospitals (CL_{DH}) was calculated by extrapolating the average current expenditure for the hospitals surveyed over all district hospitals in the country.

$CL_{DH} = (\Sigma\ B_{DHi})/n \times N_{DH}$ = KSh.(100,304+145,115+80,530+90.097)/4x82

= KSh. 8,528,984

The financial gap = FC_{DH} - CL_{DH} = KSh. 14,329,090 - 8,528,984 = KSh. 5,800,106. The district hospital financial gap was apportioned between the OPD and the rest of the hospital on the basis of the average OPD/total hospital floor space for the hospitals surveyed. This ratio is 13.8%. Therefore the financial gap for OPD = KSh. (14,329,090 x 13.8%) - (8,528,984 x 13.8%) = 1,977,414 - 1,176,999 = KSh. 800,415.

Other Supplies

For rural health facilities the full capacity budget requirement was inferred from the Kibwezi Health Center as follows:

$FC_{RHF} = KIBWEZI_{EXP} \times N_{RHF}$ = KSh. 102,309 x 310 = KSh. 31,715,790

The supplies consumed by Kibwezi Health Center included those used to provide services at its satellite clinics. Since the case load of Kibwezi Health Center and its satellite clinics is equivalent to that of an MOH health center, the utilization of resources at Kibwezi is equivalent to that which MOH facilities should achieve.

Current budget utilization (CL_{RHF}) was calculated by averaging the current expenditure (EXP) over the sample of districts and extrapolating this average over all districts.

$$CL_{RHF} = (\Sigma\ EXP_{RHDi})/n \times N_{RHFD}$$

$$=KSh.(72,669+16,308+24,483+106,129)/4 \times 42 = KSh.\ 2,305,674$$

The financial gap = $FC_{RHF} - CL_{RHF}$

$$= KSh.\ 31,715,790 - 2,305,674 = KSh.\ 29,410,116$$

For district hospital OPDs, full capacity budget requirement was inferred from Chogoria Hospital. The supplies consumed by Chogoria Hospital included those used to provide services at its satellite clinics. Since the case load of Chogoria Hospital and its satellite clinics is equivalent to that of an MOH district hospital, the utilization of resources at Chogoria is equivalent to the level of resource utilization which MOH facilities should achieve.

$$FC_{DH} = CHOGORIA_{EXP} \times N_{DH}$$

$$= KSh.\ 951,881 \times 82 = KSh.\ 78,054,242$$

where N_{DH} is the number of district and provincial hospital OPDs in the country.

Current-level budget utilization for district hospitals was calculated by extrapolating the average current expenditure (EXP) of the sample facilities over all hospitals in the country.

$$CL_{DH} = (\Sigma\ EXP_{DHi})/n \times N_{DH}$$

The financial gap = $FC_{DH} - CL_{DH}$

= KSh. 78,054,242 - 16,442,312 = KSh. 61,611,930

Because we have no information on the usage of supplies in hospitals, the district hospital financial gap was apportioned between the OPD and the rest of the hospital on the same basis as the average OPD/total hospital drug usage for the hospitals surveyed. This ratio is 37 percent. Therefore the financial gap for:

OPD = KSh. (78,054,242 x 37%) - (16,442,312 x 37%)
= KSh. 25,880,069 - 6,053,655 = KSh. 22,796,414

Malaria Control Supplies

The gap for larvacide, insecticides, and laboratory supplies was calculated as follows:

i) The costs of these resources were determined by obtaining the amounts of these resources provided to the facilities surveyed from the National Public Laboratory Services and the Division of Communicable Diseases. These figures were extrapolated to reflect facilities nationwide and then multiplied by the unit costs.

ii) The proportion of time the surveyed facilities were out of stock was calculated. These percentages were:

Supplies	Time out of Stock percent
Laboratory Supplies	
District Hospitals	3 %
Health Centers	42 %
Larvacides and Insecticides	70 %

The gaps in these supplies were calculated as:

Laboratory Supplies

Health Centers:

$$\text{Lab Supplies Gap} = \frac{\text{amount supplied}}{\text{\% time in stock}} \times \text{\% time out of stock}$$

$$= \frac{\text{KSh. 8,615,400}}{92\ \%} \times 8\% = \text{KSh. 749,165}$$

District Hospitals:

This gap was apportioned between the OPD and the rest of the hospital based on the proportion of time the Laboratory Technologists spend on work for the OPD. The survey revealed that Laboratory Technologists spend 60 percent of their time on OPD work.

$$\text{Lab Supplies Gap} = \frac{\text{amount supplied}}{\text{\% time in stock}} \times \text{\% time out of stock} \times 60\%$$

$$= \frac{\text{KSh. 7,384,600}}{97\ \%} \times 3\% \times 60\% = \text{KSh. 137,034}$$

Larvacides and Insecticides

These resources are supplied to the District Headquarters and were not apportioned to each facility category.

$$\text{Larvacides and Insecticides gap} = \frac{\text{amount supplied}}{\text{\% time in stock}} \times \text{\% time out of stock}$$

$$= \frac{\text{KSh. 1,100,000}}{30\ \%} \times 70\% = \text{KSh. 2,566,667}$$

NON-CURATIVE CARE CLIENT CONTACTS

The effectiveness of P/PHC depends to a great degree on preventive and promotive care contacts between the provider and the patient/community. These contacts occur both inside and outside of facilities. P/PHC providers were

identified and interviewed on the planned and actual activities in each of the following areas: health education, nutrition, water and sanitation, vector control, home visits, public meetings, education sessions, inspection, demonstrations, and site treatments (see Appendix 6). Each of these activities was defined as a single contact.

The lack of ability of MOH personnel to engage in community outreach was considered a major P/PHC issue by the study team. The primary resources needed, personnel, transport, supplies, etc. have already been included in the gap calculations. However, there are some centrally funded supplies used for this outreach activity. Because the study found that all planned outreach activity was not being accomplished, a gap in these supplies was calculated.

The financial resource gap in non-curative care client contact supplies was calculated as follows:

(a) The proportion of actual to planned activities (Z) was obtained from survey data:

$$Z = \frac{\text{Actual activities}}{\text{Planned activities}}$$

(b) Data on actual expenditures were obtained from the MOH departments which finance these activities.

(c) Actual expenditures finance the percentage of actual planned activities obtained in (a).

(d) The cost of providing 100% of the supplies for planned activities (P) was calculated as:

$$P = \frac{\text{Actual Expenditure}}{Z}$$

(e) The non-curative care client contact gap per district was determined by subtracting the actual expenditure from the expenditure required to provide activities at 100%.

(f) The total gap was then extrapolated to all districts in the country.

Non-curative care client contact activities are funded centrally from the Division of Family Health, Planning and Development, and Environmental Health, and the PHC Unit. In 1989/90 FY the funding level for supplies for these activities was Ksh. 950,000 for the districts sampled. The survey indicated that these funds were sufficient to carry out only 71% of the planned activities. The financial gap is the cost of the additional 29% of the planned activities. Expanded to all districts, the gap was calculated to be Ksh. 3,977,000.

Table 16 provides a summary of the individual utility, supplies, and food gaps in the facilities. The total gap in these categories was found to be KSh. 63,318,760.

Table 16: Summary of Supplies Gaps

Category	Current KSh.	Full Capacity KSh.	Gap KSh.
Utilities			
Hospitals	1,176,999	1,977,414	800,415
RHFs	720,594	1,611,918	891,324
Other Supplies			
Hospitals	6,083,655	28,880,069	22,796,414
RHFs	2,305,674	31,715,790	29,410,116
Lab. Supplies			
Hospitals	7,384,600	7,521,634	137,034
RHFs	8,615,400	9,364,565	749,165
Malaria Control	1,100,000	3,666,667	2,566,667
Non-curative outreach	13,713,793	17,690,793	3,977,000
All Supplies	41,100,715	102,428,850	61,328,135

4.8 PATIENT FOOD

Health centers provide inpatient care for pregnant women giving birth without complications. In general, the stay is short and the major expenditure is on patient food. In many cases, food for these women was considered inadequate during a period considered crucial for both maternal and child health.

The gap in funding for patients' food for rural health centers was calculated as the difference between the full capacity funding requirement and the current level of budget utilization.

The full capacity funding requirement on patients' food in all the RHCs was calculated by:

FC = ST x NH x AB x DY x BO

where FC = full capacity funding
ST = standard daily cost of a patient's food
NH = number of health centers in the district
AB = average number of beds in a health center
DY = days in a year
BO = average bed occupancy in a health center

FC = KSh.13.50 x 310 (10) x 365 (0.5) = KSh. 7,637,625

Calculation of the gap is shown below, using a current expenditure estimate on patient food in all health centers of KSh. 1.67 million. Therefore the funding gap is KSh. 6.0 million.

Full Capacity needs	7,637,625
Current expenditures	1,670,000
Gap in funding	5,967,625

5.0 SUPPLEMENTAL CALCULATIONS

The focus of this report is on the provision of P/PHC services. Although the preceding section details the calculation of the resource gap, there are several additional aspects of P/PHC that were considered important enough to have additional calculations included in the report. These included some additional estimations for limited construction of facilities to provide MCH and FP services where they are not currently being offered. In addition, some preliminary calculations are shown on the amount of cost sharing revenue potentially available for P/PHC.

5.1 MATERNAL/CHILD HEALTH AND FAMILY PLANNING

The scope of work for this study dictated the use of existing facilities for the determination of full capacity. The MOH team working on this project felt strongly that the one occasion where we should vary from this requirement was in the provision of MCH and FP activities, including KEPI. The provision of these services was considered such an integral part of P/PHC that the inability of some facilities to offer these services was considered a serious gap in its own right.

Information was collected in the survey on the utilization of vaccines and contraceptives. Information was also collected on the length of time these commodities were out of stock. The data indicated that there were no shortages of vaccines or contraceptives but that the provision of MCH/FP is constrained by shortages of:

(i) Training
(ii) KEPI equipment
(iii) Transport
(iv) Space
(v) Gas and other supplies

Table 17 summarizes the constraints to service delivery reported at each of the facilities. All of these constraints are already included in our calculations, with the exception of space and KEPI equipment for facilities not currently offering these services. At the dispensaries, lack of space for the delivery of MCH/FP was a major constraint to the provision of MCH/FP.

To determine the cost of additional space, two types of dispensaries were considered, D_2 and D_1. (D_2 has MCH/FP space provided in its design. D_1 does not.) D_2 has ground space of 255 square meters while D_1 has 177 sq. m. The total cost of constructing, with housing, a D_2 facility is Ksh. 1.9 million, while the cost of building a D_1 facility is KSh. 1.5 million. D_2 dispensaries have one type E staff house and 3 Type F staff houses. D_1 has one type E and 2 type F staff houses. In 1990, the cost of constructing a Type E house was KSh. 473,000. The cost of constructing a Type F house was KSh. 264,000.

Table 17: Number of dispensaries that reported constraints to MCH/FP services

Constraining Factor	Districts and number of facilities				% that reported
	Baringo	Kilifi	Busia	Meru	
Gas	8	0	0	0	19
Transport	2	0	0	0	5
Equipment	3	4	2	2	26
Trained Staff	1	1	2	1	12
Space	0	2	2	2	14

Since D_2 dispensaries have space to provide MCH/FP and D_1 dispensaries do not, the cost of constructing additional space to provide MCH/FP was assumed to be equal to the difference between constructing a D_2 and a D_1 dispensary.

The cost of constructing additional space to provide MCH/FP was calculated as follows:

Total cost of constructing D_2 Dispensary with staff houses	- cost of 1 Type E and 3 Type F houses	=	Cost of constructing D_2 with MCH/FP and without staff houses

1.9 m - (473,000 + 3 x 264,000) = Ksh. 635,000

Total cost of constructing a D_1 dispensary with staff houses	- Cost of 1 Type E and 2 Type F houses	=	Cost of constructing a D1 without staff houses

1.5 m - (473,000 + 2 x 264,000) = Ksh. 499,000

The cost of adding MCH/FP space to a dispensary is then the difference in construction cost of D1 and D2 dispensaries, exclusive of housing. This quantity is KSh. 136,000.

The total funds needed to provide space for MCH/FP in the country are calculated as follows:

Number of facilities without space / Sampled dispensaries	x	Number of disp. in the country	x Cost of MCH/FP space

$$\frac{6}{42} \times 850 \times \text{KSh. } 136{,}000 = \text{KSh. } 16{,}514{,}000$$

Total gap in additional space required to provide MCH/FP is Ksh. 16,514,000.

The cost of providing KEPI equipment in one facility is approximately KSh. 45,000. Therefore, the equipment gap for the whole country was calculated as follows:

Disp. without KEPI Equipment / Dispensaries sampled	x	Number of dispensaries in the country	x Total cost of the Equipment

Thus,

$$\frac{11}{42} \times 850 \times \text{KSh. } 45{,}000 = \text{Ksh.}10{,}018{,}000$$

Therefore, Ksh. 26,532,000 are required to provide adequate space and equipment for dispensaries to provide MCH/FP, including KEPI, at full capacity.

5.2 THE VALUE OF DRUGS RETURNED

The study also investigated the quantity of drugs that the rural health facilities return to the district headquarters each month. Some facilities were not able to use all of their drugs from the kits, and were able to return some drugs to the district headquarters. MOH personnel identified the eight most commonly returned drugs. The quantity of these drugs returned for the first three months of the year was recorded in the survey. The cost of these drugs was determined, and the annual value of drugs returned from all facilities in the MOH system was inferred from the sample. The national value of these drugs returned by type of facility is shown in Table 18.

Table 18. Value of Drugs Returned by Health Centers and Dispensaries

Drug	Health Centers	Dispensaries	Total Value
Ferrous Sulfate	20,443	127,270	147,713
Largactil	717,543	28,241	745,784
Chloroquine	1,178,157	1,233,273	2,411,430
Yeast tabs	0	0	0
Ergometrine	36,307	14,141	50,448
Franol	59,520	37,091	96,611
Orolites	0	1,619,482	1,619,482
Penicillin	0	129,818	129,818
Total	2,011,971	3,189,315	5,201,286

Almost half of the value of all drugs returned was from Chloroquine. Orolites also accounted for about 30 percent of the value of drugs returned. The study team did not establish what quantity of these drugs were reused and what quantity expired. This represents a possible avenue for helping to close the drug gap without additional funding if the composition of the drug kits is structured more efficiently.

5.3 COST-SHARING REVENUE

The MOH has recently engaged in a cost sharing program at some facilities that is expected to increase the revenues available for P/PHC. The MOH policy on cost-sharing revenue, as it concerns this study, has been assumed to include the following provisions:

(a) of the cost-sharing revenue collected in the district hospitals and provincial hospitals, 25% was to be used for P/PHC.

(b) in accordance with the P/PHC definition, all the cost-sharing revenue collected at the health centers was to be used for P/PHC.

The cost-sharing revenue which may be available for P/PHC was estimated as follows. The monthly average cost-sharing revenue (CSR) per sampled facility in a facility category was annualized and then extrapolated over the entire population of facilities in that facility category in the country:

$$CSC_{HC} = (\Sigma R_j /nm) \times YR \times N$$

Where:

R_j is cost-sharing revenue collected at facility j in a given facility category per month.
n is number of sampled facilities in a given facility category.
m is number of months sampled.
N is the number of facilities in a given facility category in the country.
YR is the number of months in a year.

In the case of health centers;

$$CSRHC = Ksh \left(\frac{557,788}{14 \times 4} \times 12 \times 310\right) = KSh.\ 37,053,060$$

For hospitals:

$$CSRH = Ksh \left(\frac{2,211,120}{5 \times 4} \times 12 \times 82 = KSh.\ 108,787,104\right.$$

CSRH was multiplied by 25% to obtain the cost-sharing revenue for P/PHC. This totaled Ksh. 27,196,776. Therefore, the total cost-sharing revenue that may be available for P/PHC is Ksh. (37,053,060 + 27,196,776) = Ksh.64,249,836. This revenue would close about 15% of the annual financing gap.

6.0 FINDINGS

The delivery of P/PHC by the MOH is constrained by two types of financing gaps: a gap in annual recurrent expenditures needed to provide P/PHC services at full capacity, and a one-time investment expenditure required to upgrade the existing facilities for P/PHC to the desired level. The annual recurrent cost gap was found to total KSh. 430 million, and is summarized by expenditure category in Table 19. This gap represents approximately 37% of current expenditures for P/PHC services and 20% of the entire MOH recurrent budget.

Table 19. ANNUAL EXPENDITURE CALCULATIONS
(million Ksh.)

	EXPENDITURES			
Category	Current	Full Capacity	Gap	% of Current
Drugs	275.7	354.7	79.1	29
Equipment	6.3	13.5	7.2	114
Transport	19.3	36.6	17.3	90
Training	42.2	47.3	5.1	12
Supplies	41.1	102.4	61.3	149
Patient food	1.7	7.6	6.0	352
Building Maint.	3.3	86.6	83.3	2,524
Staff	765.5	936.0	170.5	22
TOTAL*	1,156.8	1,584.7	429.8	37

NOTE: * numbers may not add up due to rounding

The largest annual funding gaps in monetary terms are staff, building maintenance, drugs, and supplies. As can be seen from the table, current annual spending on P/PHC is concentrated on personnel and drugs. Thus, although these two categories are among the largest Shilling gaps, they are relatively small percentage gaps at 22% and 29% respectively. Conversely, building maintenance and supplies are relatively small components of the current budget. However, since they are the two most underfunded categories, the cost of these gaps in both shillings and percentage is very large, at Ksh. 83 million and Ksh. 63 million respectively. The remaining gaps- equipment maintenance, transport, and in-service training- are relatively small. These range from Ksh. 5 to 17 million. The smallest gap, in both monetary and percentage terms, is the annual cost of in-service training for new employees in the P/PHC system. The relative size of these gaps is depicted in Figure 1.

An assumption originally embedded in the scope of work for this study was that the MOH had sufficient labor, but lacked other crucial resources. To examine this assumption, Table 20 and Figure 2 break the recurrent cost gap into labor and non-labor components. This table shows that labor is better funded and has a smaller gap relative to other resources. While staff had a 22 percent gap, the non-staff portion of the recurrent gap is about 67% of current non-staff expenditures.

TABLE 20: ANNUAL P/PHC FINANCING GAPS

Expenditures:	Current	Full Capacity	Expend. Gap	% of Current
Non-Labor	389.6	648.7	259.3	67
Labor	765.5	936.0	170.5	22
Total	1,155.1	1,584.7	429.8	37
Labor as a % of Total:	66	59		

FIGURE 1

Annual Expenditure Gap
By Category of Resource

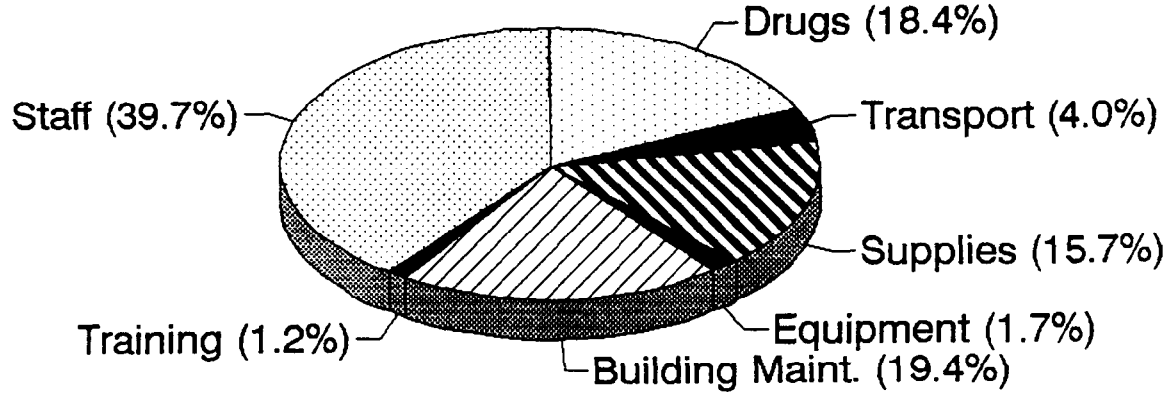
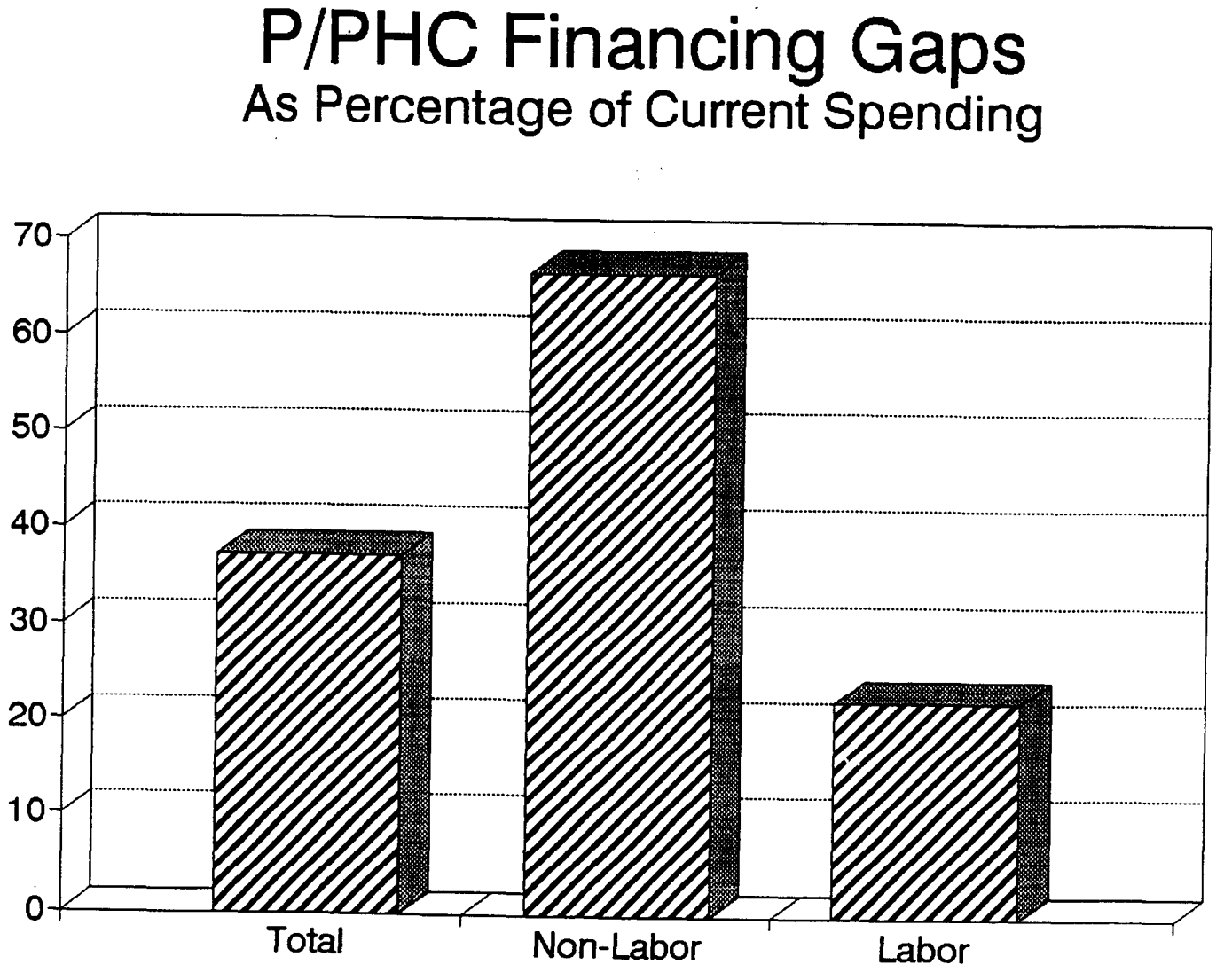


FIGURE 2


P/PHC Financing Gaps
As Percentage of Current Spending
70
60
50
40
30
20
10
0
Total
Non-Labor
Labor

Thus, if the entire P/PHC resource gap were to be funded, this table shows that staff expenditures as a percentage of P/PHC expenditures would fall from 66 percent to 59 percent.

The importance of each category of gap should not be confused with its size. For example, although the transport maintenance gap is relatively small, transport was often identified in the survey as a major constraint to the delivery of P/PHC. Many activities had to be deferred because vehicles were either not running or out of fuel. Other major complaints included shortages of supplies (both medical and non-medical) and lack of drugs. These were often viewed as more serious constraints than the large staffing gap identified by this study. A small gap with important long-term effects is equipment maintenance. If equipment is not maintained properly, it becomes unusable and must be replaced. This often results in low productivity while equipment is unusable.

The sizes of these gaps depend on the norms used for the determination of full capacity in health centers, dispensaries, and hospital outpatient departments. These norms were described in the analysis sections, and should be taken into account when making use of the results.

Table 21 summarizes the needed additional investments of KSh. 375 million that were estimated by this study. This one-time expenditure is required to upgrade equipment and vehicles, to train staff, and to provide additional space and equipment for MCH/FP. Note, however, that this is an underestimate of the required additional investment, since this study did not estimate the expenditure required to rehabilitate P/PHC buildings.

Study team members feel that if building rehabilitation were included in this investment expenditure, the total probably would more than double. Without accounting for building upgrading, the largest investment category is for increasing the inventory of equipment to standards required for full capacity operations.

The cost of increasing the vehicle inventory is small because the MOH has a sufficient fleet of vehicles to meet established norms. However, many of the vehicles are not currently operating and need rehabilitation. In addition to training new employees, many of the current staff need appropriate in-service training. Bringing current staff up to recommended in-service training norms will require an additional KSh. 27 million.

Although the terms of reference for this study called for no additional facility construction, many dispensaries surveyed lacked space and equipment for providing MCH/FP. These services could be provided in such dispensaries at a cost of KSh. 27 million. This includes KSh. 10 million for equipment and supplies and KSh. 17 million to provide MCH/FP space where needed.

Table 21. INVESTMENT EXPENDITURE GAPS

Category	Expenditure Gap (million KSh.)
Equipment	315.8
Transport	5.5
Training	27.3
MCH/FP	26.5
TOTAL	375.1

One question that has arisen in the course of this study is the relative condition of hospital outpatient departments and the MOH rural health facilities. In general, the study found that the rural health facilities had significantly larger gaps in most resources. In terms of the investment expenditure gaps, the rural health facilities were far more deficient in equipment than OPDs. As a percentage of current equipment inventory, the shortfall was only 22% in hospitals, but was 36% in health centers and 59% in dispensaries. Further, the entire MCH/FP gap identified in Table 21 exists in dispensaries.

In terms of annual expenditures, Table 22 demonstrates that where the gaps can be apportioned between OPDs and RHFs, the RHF gap of 44% is much higher than the OPD gap of 29%. Because of the analysis methodology or the structure of the data, it was possible to divide the gap only in the categories of drugs, building maintenance, personnel, and supplies. However, these four categories represent 94% of current spending and 93% of the identified gap. It was not possible to divide expenditures in the categories of equipment maintenance, in-service training, or vehicle maintenance.

Table 22: Relative Condition of OPDs and RHFs

	Current Expend.	Gap
RURAL HEALTH FACILITIES:		
Drugs	196.7	43.9
Building Maint.	2.1	73.0
Personnel	309.0	81.0
Supplies	13.3	37.0
TOTAL:	521.1	234.9
Gap as % of current spending:		44 %
HOSPITAL OUTPATIENT DEPARTMENTS		
Drugs	79.0	35.0
Building Maint.	1.2	10.3
Personnel	456.5	89.5
Supplies	14.6	23.7
TOTAL:	551.3	158.5
Gap as % of current spending:		29 %

Both the equipment inventory and the current spending allocations support the perceptions of the study team that the RHFs were in worse condition and had greater needs than the hospital OPDs. Additional evidence of this can be seen by relating the service volumes of the facilities to spending. The study found that hospital OPDs provided about 10,000 consultations per month, while health centers averaged about 3,000 and dispensaries about 2,000. The large number of RHFs, however, means that dispensaries provide more than 60% of all consultations and health centers more than 30%. Hospitals provide less than 10% of outpatient consultations, but Table 22 indicates that they receive about equal funding to

RHFs. It is important to note, of course, that OPDs also treat more serious cases than the RHFs.

7.0 MONITORING AND PLANNING

7.1 A MONITORING MECHANISM

The monitoring mechanism consists of a computer program which will enable the Ministry of Health to monitor the financial resources allocated toward P/PHC in the recurrent budget and to determine the levels of funding directed toward P/PHC in the Forward Estimates.

The monitoring mechanism apportions the MOH recurrent budget line items between P/PHC and secondary and tertiary care. The ratios for apportioning the resources were determined by the survey on P/PHC resource utilization.

A summary of the methodology used in the development of the monitoring mechanism follows.

Subvote 110: General Administration and Planning.

The MOH overhead expenses included in all heads under subvote 110 are apportioned according to the ratio of expenditures for facility-based P/PHC to expenditures on all facility-based services. The study determined this ratio to be 0.55.

Subvote 111: Curative Health.

Under this subvote, heads 315 (Kenyatta National Hospital), 318 (Psychiatric Services), 741 (Gilgil Psychiatric Services) and 320 (Spinal Injury Hospital) were excluded because they are either referral or specialized institutions. Heads 321 (Biomedical/Hospital Engineering) and 351 (Dental Health Services) were apportioned to P/PHC using the ratio of facility-based P/PHC expenditures to expenditures on all facility-based services (i.e. 0.55).

Line items under head 316 (Provincial General Hospitals) and 317 (District Hospitals) were apportioned, according to study findings, as follows:

Personnel

000	Personnel Emoluments
040	Gratuity and Pension Contributions
050	House Allowance
060	Other Personal Allowances
080	Passage and Leave Expenses
110	Travelling and Accommodation Expenses
172	Purchase of Uniforms and Clothing - Staff
181	Payment of Rents and Rates - Residential

To obtain funds under these line items used for P/PHC, allocations to the line items were apportioned by the ratio of cost of staff providing P/PHC in facilities to total staff cost in the facilities. These ratios were 0.224 and 0.394 for heads 316 and 317 respectively.

Transport

100	Transport Operating Expenses
200	Replacement of Motor Vehicles

49 % of the transportation resources were utilized in the provision of P/PHC

Drugs and Dressings

151	Drugs and Dressings

37 % of the drugs and dressings were used to provide P/PHC.

Medical Equipment

220	Purchase of Plant and Equipment
240	Maintenance of Dental Equipment
250	Maintenance of Plant Machinery and Equipment

13.8 % of the equipment was used to provide P/PHC

Buildings

260 Maintenance of Buildings and Stations.

13.8% of hospital space was used to provide P/PHC.

Utilities and Other Materials

120 Postal and Telegram Expenses
121 Telephone Expenses
140 Electricity, Water, and Conservancy
177 Cleansing Materials
230 Office Equipment.

13.8% of the resources allocated to utilities and other materials were used for P/PHC.

Other Supplies.

155 X-Ray Supplies
174 Purchase of Stationery
176 Printing of Medical Records

37% of other supplies were used to provide P/PHC.

The allocations in the remaining items were considered to be for curative services.

Subvote 112: Preventive Medicine and Promotive Health.

Funds allocated to all heads under this subvote were taken to be for P/PHC.

Subvote 113: Rural Health Services.

By the definition of P/PHC adopted in this study, all funds allocated under this subvote were considered to be for P/PHC.

Subvote 114: Health Training.

Funds allocated under this subvote were apportioned by 48.6% to obtain resources for P/PHC.

Subvote 115: National Health Insurance.

Funds allocated under this subvote were excluded because the National Hospital Insurance Fund pays only for inpatients.

Subvote 116: Medical Supplies Coordinating Unit.

The allocations under this subvote were apportioned by 51% to obtain resources for P/PHC.

A limitation of this monitoring mechanism is that the ratios for disaggregating the resources used to provide P/PHC from those used to provide curative care will change as resources are shifted from curative to preventive care. Consequently, a resource utilization survey ought to be conducted periodically in order to update the ratios needed to disaggregate the expenditures. Additional resource utilization surveys can be conducted on a much smaller sample of facilities in order to obtain representative figures. Since the methodology and survey instruments have been developed, implementing the survey is straightforward and can likely be done with a Kenyan staff.

The computer program for the monitoring process is provided in Appendix 4.

7.2 A PLANNING PROGRAM

This study was not asked (and made no determination) about the ability of current facilities to satisfy population needs for health services. The study was, however, asked to provide a simple planning tool that could help determine resource needs for planning exercises.

In response to this need, the study developed a Lotus 123 spreadsheet that will predict resource needs for any given level of facilities in the MOH system. This spreadsheet has been delivered to the MOH, and Ministry staff are familiar with its use.

The spreadsheet contains unit costs for the categories of resources used in this study, and for each category of facility. The user then can specify the target number of facilities that the Ministry believes are necessary to meet population needs. The program will then calculate the cost per category of resource and the total cost of operation of these facilities.

Currently, the program also contains study estimations of the level of resources currently being expended, and calculates the current resource gap. For planning exercises, users can input the expected level of expenditures and the program will calculate the expected gap.

Using both types of user inputs, expected expenditures, and needed number of facilities, users can go through a range of scenarios which include:

- What level of facilities can we currently operate at full capacity?

- What level of expenditures would be needed to satisfy population demands?

- What is the expected shortfall as planned facilities begin operation?

- What expansion of operations could cost sharing support?

Other purposes for this program will become evident as its use grows over time.

8.0 CONCLUSIONS

This study has identified a number of important gaps in the funding of the P/PHC activities of the MOH. The findings section provides a number of quantitative measures of those gaps. This section provides some discussion of those findings. Several major points are raised in this section. These include the observation that the importance of each resource gap is not synonymous with its size. Ways in which the gaps can be filled are discussed, including some cautions about the use of cost-sharing revenues. Finally, discussion of possible further uses of this data is included.

A preliminary observation growing out of the study is the need for more complete and clearly specified norms. The study team had a very difficult time in developing the set of norms used in this study. They relied on unofficial MOH guidelines, studies from various Ministries, and informal communications from officials. Aside from making this study much more simple to conduct, agreed upon official norms are considered necessary for proper planning purposes. Without proper standards against which to judge current operations, it is very difficult for the MOH to set goals or measure performance.

Establishment of these norms is not a trivial procedure. Ideally, creation of norms for both facility resources and facility performance would take into account a careful consideration of what is required for efficient operations. This includes knowledge of how to produce the most health services for the least cost and how to ensure long-term viability of facilities. A significant amount of information has been collected, both in this study and in the PADS study, that can be used to assist the MOH in setting these standards.

A major issue for implementation of the study results is the problem of what sequence of allocations will be used to shift resources to P/PHC. The MOH will be faced with major allocation decisions over the years that this gap is to be filled. If resources were available to fill this gap immediately, this would be a moot point. However, since the gap is to be filled gradually over about four years, a question arises of what is the most useful order of new expenditures. It is possible that some of these resource gaps represent strategic deficiencies that should be filled first, rather than an approach that fills a portion of every gap simultaneously.

The observations of the study team may be useful in providing information on this process. During the course of data collection, the team observed that some resource deficiencies represented constraints on facility operations far in excess of their apparent costs. One such case was the issue of transport. Many facilities reported major difficulties with transportation, but subsequent calculations found that the cost of the transport gap was small relative to other categories. In general, those categories with a high percentage gap, such as maintenance and supplies, were perceived to be among the most important deficiencies. Thus, even though staffing represented the largest gap in terms of shillings, its low percentage gap may indicate that other resource categories are a higher priority. Increases in staff may have little effect on productivity if the increased staff do not have adequate equipment, drugs, and supplies with which to work.

Although this study was charged with the specific task of identifying the existing resource gap, a significant amount of qualitative data was gathered in the field that could be of use in closing the gap. Many of these alternatives are currently under consideration by the MOH, and the discussion here is simply of how these endeavors address the gaps identified.

Maintenance of buildings, equipment, and vehicles has been identified as a major shortcoming in P/PHC resources. The MOH is aware of this problem, and has been discussing several alternatives. One step under consideration would be to create a special unit within the MOH for maintenance. Such a unit would also work on rehabilitation of MOH buildings and might establish a number of regional garages for MOH vehicles. The principal idea behind this would be to bring these maintenance activities within the MOH rather than relying on the Ministry of Public Works. While the MOH has some authority over maintenance, it is not clear how much transfer of maintenance funding has occurred.

Standardization of equipment and vehicles would allow a maintenance unit to function much more effectively by maintaining a smaller range of equipment and vehicle types than the MOH currently has. The MOH has expressed a desire for such standardization, but since much of its equipment comes from donors, this would require coordination with several international agencies. This lack of standardization could jeopardize the feasibility of a special maintenance unit within the MOH.

Development of effective drug supplies is a high priority within the MOH, and many study participants expressed the opinion that the advent of drug kits had improved the supply of drugs at the health centers and dispensaries. In fact, the study finding that these facilities had a better drug supply than hospital outpatient departments was often attributed to the kits. Nevertheless, there was some desire for modification and fine-tuning of the drug kits to improve their performance. There was little discussion of extending the kits to hospitals, although some improved drug availability for hospitals might be considered.

The distribution of supplies proved to be a major problem in this study. Often, facilities reported that they purchased supplies locally in small quantities because MOH provisions were inadequate. Discussions with the MOH revealed that this was a concern, and that the Ministry was investigating development of a supply kit system to improve availability. Shortages here were uniform across all facilities, and the MOH might consider implementation of such a kit system in both rural health facilities and hospitals.

Cost-sharing revenues have been partially earmarked for P/PHC, and will assist in filling the gaps identified in this study. The rules of collection and use of these funds, however, have the potential of creating inequities between facilities. Currently, facilities may use 75% of the funds collected, with the remaining 25% going to general P/PHC use. Hospitals and health centers are collecting revenues, but there are currently no plans for dispensaries to begin collecting cost-sharing revenues. As a result, as revenues begin to be used for upgrading the quality and quantity of care, there is a danger that dispensaries will fall behind other facilities in the rate of improvement. This could have a major impact on MOH efforts to move more health care delivery to the rural health facility level as the quality of care in dispensaries begins to lag farther behind other facilities. The MOH has expressed awareness of this issue, and future modifications of cost sharing are likely to take it into account.

Finally, it should be pointed out that the dataset developed by this study provides an important baseline description of MOH P/PHC facilities. It is a rich source of information about the current operation of P/PHC in Kenya. This study has barely begun to use information in this data. As such, it can be used to address a number of other issues. Among these are:

- What is the performance of the drug kits, and how can it be improved? Is the composition of the kits correct, or are some drugs in surplus and others in short supply? Is there a regional variation in the performance of the kits across the four regions used in this study?

- What is the current level of efficiency in these facilities? Because the study has measures of both inputs and services, it is possible to measure the efficiency of facilities. Moreover, econometric techniques are available to estimate the relative contributions of each category of resources. Knowing the "marginal productivity" of each resource category would be beneficial in determining where to first invest in closing the gap. Other possible questions to be addressed include: a) What are the optimal combinations of resources for most efficient operation? b) Is there an optimal size for facility operations? and c) How much are services decreased by various levels of shortages in each of these resource categories?

- How does the actual allocation of resources at the facilities match the reported budget expenditures at the headquarters? How do these discrepancies correspond to identified gaps in resources, or are there other systematic differences between resource use and reported use?

Many other issues can also be addressed with this data, including many types of regional and facility variations. For some questions, the data should be combined with information about the regions where it was collected, such as disease patterns or income. This information, combined with facility data, might be able to indicate where cost sharing is most successful, and why. Thus, it might be able to provide some information about consumer preferences. As the contemplated reforms of the MOH progress, other uses for this data will be identified.

APPENDIX 1: WORKSHOP REPORT

REPORT ON THE WORKSHOP HELD AT THE SAFARI PARK HOTEL NAIROBI, KENYA JULY 27TH, 1990

1. Objective:

The principal objectives of the workshop were threefold:

a) To present the report to the clients, especially the Ministry of Health, which was the primary client, and the following donors: USAID, SIDA, and ODA, who were the secondary clients.

b) To elicit comments from the participants on the technical aspects of the study.

c) To discuss the possible uses of the study findings, especially by the Ministry of Health.

2. Organizational Approach:

The workshop participants represented the main parties expected to have a role in the generation and implementation of policies to bridge the gap identified in the delivery of P/PHC services in the Ministry of Health system.

These included officials from the Health Care Financing Secretariat, the Finance Department, the Planning and Development Department, the Personnel Section, the Primary Health Care Unit and the Division of Family Health in the Ministry of Health. Officials from USAID, ODA, and the World Bank were also present.

The workshop went through the following activities:

a) The study team made presentations on the following aspects of the report:

i) Study overview and methodology.

ii) How the gaps were estimated and findings on the gap.

iii) The proposed monitoring mechanism.

iv) The proposed planning program.

b) The participants discussed the report and made observations on how its findings could be used, especially by the Ministry of Health.

3. Observations:

Following the discussions on various aspects of the study, the following observations were arrived at:

A. On Technical Aspects of the Report:

i) If possible, Table 1 should be desegregated to show the gaps by health institution subcategories (e.g. by Health Center, Dispensary, and Hospital Outpatient Departments.

ii) The training gap on Table 1 should be reviewed in light of the staff requirements.

B. On General Methodological Issues:

i) There is a significant difference between Ministry of Public Works cost quotations and those of private dealers. There was a need to investigate such differences and their implications on the findings of the report. The norms used by the Study Team constitute good guidelines but not official norms.

ii) There is a need for the Ministry of Health to develop official norms to facilitate the approaches to studies of this nature in the future. This is particularly important in view of the recommendation that the resource utilization survey be represented on a smaller scale every two years or so.

iii) The possibility of using the study findings in conjunction with those of the PADS report should be investigated, since

PADS addressed the issues of efficiency and cost effectiveness in the delivery of health care services.

C. On Resource Utilization Issues:

i) Given the guidelines on norms, some health care facilities were found to have surpluses of some resources (e.g. certain cadres of staff, vehicles, etc.), while other facilities had deficits. There is a need to examine the possibility of reallocating such resources from facilities with surpluses to those with deficits in order to reduce the resource gap without calling for additional resources.

ii) The wasting of drugs and other resources should be monitored. This process should include the monitoring of under-utilization of resources by institutions (for example, unused equipment, etc.) to help reduce the gap without additional allocations.

D. On Closing the Resource Gap:

i) There is a need for the Ministry of Health to facilitate prioritization of measures to close the various resource gaps in P/PHC services.

WORKSHOP PARTICIPANTS
PREVENTIVE/PRIMARY HEALTH CARE RESOURCE GAP
STUDY WORKSHOP - 27TH JULY, 1990

NAME	ORGANIZATION	DESIGNATION	CONTACT
Esther Waniiko	Thunder&Assoc. Inc	Systems Analyst	Tel# 723061
M. Manundu	U. of Nairobi	Health Economist	Hse: 750302
J. Kirigia	U.S.A.I.D.	Health Economist	331160 ex 470
Dr. Larry Forgy	Abt Assoc.	Economist	301-913-0500
G.K. Ikiara	U. of Nairobi	Economist	334244 ex 2122 Hse: 503331
Gillian Holmes	O.D.A.	Regional Health & Population	335944
Peter Godwin	World Bank	Project Operations Officer	338868
Wangechi Ndei	Ministry of Health	Admin Officer	728370 ex 2388
E.W. Wahome	MP & ND	Planning Officer	338111 ex 493
Joanne Bennett	Abt Assoc	Financial Analyst	Bethesda, MD USA
Liambila Wilson	Ministry of Health	Program Officer PHC	728370 ex 2122
Ben Nganda	U. of Nairobi	Economist	334244 ex 2122
Tom Omurwa	Ministry of Health	Stat/Analyst	728370 ex 2451
Connie Johnson	U.S.A.I.D.	Population and Health Dev. Officer	331160 ex 233
I. Okulla Omeri	Ministry of Health	Dep. PHC Manager	Bx 30016 NBI
J. G. Ngugi	Ministry of Health	Hospital Sec.	721797
D.N. Kaninu	Ministry of Health	Hospital Sec.	721797
J. M. Kioko	Ministry of Health	Pharm. in charge EDP	540130
Thomas Caruso	Thunder&Assoc.	Regional Rep.	723678
J. O. Otieno	Ministry of Health	Under Secretary	Bx 30016, NBI
F.K. Mwenda	Ministry of Health	SAS/F	Bx 30016, NBI
G. H. Olum	Ministry of Health	Chief Economist	725162
Dr. C. Shuftan	IPS/MOH	Health Planner	723081
S. Muchiri	Ministry of Health	Economist	728370 ex 2438 or 2843
J.B.R. Muthuma	Ministry of Health	Under Secretary	728370
Dr. R.K.A. Sang	Ministry of Health	Personnel Manager KEPI	725105
Dr. C.K. Munane	Ministry of Health	ADMS	
S. W. Muindi K. I. A.	Financial Analyst		582124

APPENDIX 2: STUDY SCOPE OF WORK

Analysis of the Costs of P/PHC in Kenya
Scope of Work

Background

The Ministry of Health in Kenya has developed an agenda for reform which is being supported by the Health Care Financing Program and Project (KHCFP). The MOH and USAID/Nairobi agreed that interim and final benchmarks for budget reallocations from secondary and tertiary care to preventive and primary health care (P/PHC) interventions would be a condition precedent to the KHCFP. In order to establish these benchmarks, the MOH must first determine the resources necessary to provide P/PHC services at capacity nationwide. The P/PHC interventions which will be studied in this analysis include family planning, vaccination, oral rehydration therapy, pre- and post-natal care, growth monitoring, malaria prophylaxis, and primary curative care.

Goals of the study

This analysis of the costs of P/PHC will determine the level of spending required to provide P/PHC services at capacity nationwide. This estimate will then be compared with actual spending levels in order to determine the gap between resources currently allocated to P/PHC and resources needed to offer P/PHC at capacity. This analysis is based on the premise that a major reason that existing P/PHC facilities and staff are operating at less than 100 percent capacity is a scarcity of non-personnel resources.

The study consists of the following components:

1. Estimating the current capacity for offering P/PHC services
2. Estimating the costs of operating facilities for providing P/PHC services at full capacity
3. Determining the actual allocation of funds for P/PHC
4. Estimating the gap in funding between what is needed for full capacity operations and actual allocations.

The results of this study will be used by the MOH to improve the efficiency with which it allocates resources. Shifting resources from non-P/PHC to P/PHC interventions will enable the MOH to have a greater impact on the health status of the population with the same or fewer resources. The MOH will use the results of this analysis to project appropriate levels of funding for P/PHC in the next four years and to establish the benchmarks required by the KHCFP.

Specific Activities:

1. Estimating the current capacity for offering P/PHC services

The initial phase of the study will be to estimate the existing physical and staffing capacity for offering P/PHC in Kenya. Initially an inventory of the facilities offering P/PHC will be developed. This listing will include the name of the facility, the type of facility, and an estimate of the physical capacity available for P/PHC. Similarly a list of the full-time equivalent staff available for P/PHC will be generated. This list will include the P/PHC specialty, the level of training of the staff member, and the hours the individual works. This information will be collected from the records of the MOH and interviews with MOH personnel.

2. Estimating the costs of operating facilities for providing P/PHC services at full capacity

The second phase of the study will include a survey of P/PHC providers which are operating at full capacity to determine their costs.

First, the sites to be surveyed will be selected. The selection will be designed to include five randomly selected facilities of each type within two regions and Nairobi. The regions will be selected to provide a representative sample of population densities and epidemiological patterns. The Eastern Province, with its high population density and infant mortality, will be one region. Facilities which are operating at full capacity will be selected. Full capacity will be defined as facilities where operations are not limited by shortages of non-personnel resources. These sites will be visited and costs will be obtained from the financial records, interviews with personnel, and observation. Utilization data will also be collected. Where there are no facilities operating at full capacity other methods will be used to make estimates. These methods include interviews of personnel at sample facilities.

3. Determining the actual allocation of funds for P/PHC

The actual allocation of funds for P/PHC will be estimated in two ways: by disaggregating the MOH budget and by observing the operations of sample providers. The most recent MOH budget will be analyzed. This process will result in an estimation of the personnel, medicine, supplies, fuel, and maintenance costs which were directed toward P/PHC. The methodology used will be applicable to previous years, although the current scope of work covers analysis of only the most recent budget. In addition, to determine the resources which are actually used by P/PHC providers, a sample of sites will be studied. Site selection will be done in parallel with that described in 2. Operations will be analyzed to determine resources actually received. Utilization data

will also be collected in order to determine the changes in utilization resulting from underfunding.

4. Estimating the gap in funding between what is needed for full capacity operation and actual allocations.

The costs of operating the facilities at full capacity will be compared with current expenditures for P/PHC. These estimates will be expressed in absolute amounts, as percentages of overall budgeted operating allocations, and as percentages of budgeted allocations to P/PHC. Additionally, the percent of underutilized capacity in surveyed facilities and the ratio of personnel to non-personnel spending at facilities operating at 100% will be determined.

Outputs

This analysis will result in the following:

1. estimation of the existing physical capacity for P/PHC
2. estimation of the existing staffing capacity to offer P/PHC
3. estimation of the costs of providing P/PHC at 100% capacity
4. current allocations of MOH resources toward P/PHC
5. estimation of the gap between actual resource allocations and resources needed to operate at capacity
6. spreadsheets developed to analyze resources allocated to P/PHC
7. a methodology for disaggregating MOH expenditures for P/PHC

APPENDIX 3: SAMPLING

TABLE A: THE MAIN AGRO-CLIMATIC ZONES OF KENYA

ZONE		DISTRICTS IN ZONE
1.	Coastal Plains	1. Mombasa
		2. Kilifi
		3. Kwale
		4. Lamu
		5. Tana River
		6. Taita/Taveta
2.	Lake Region	1. South Nyanza
		2. Siaya
		3. Kisumu
		4. Busia
3.	Low Potential Inland	1. Mandera
		2. Wajir
		3. Garisa
		4. Marsabit
		5. Isiolo
		6. Kitui
		7. Machakos
		8. Embu
		9. Baringo
		10. Kajiado
		11. West Pokot
		12. Narok
		13. Elgeyo Marakwet
		14. Turkana
		15. Laikipia
		16. Samburu
4.	High Potential/Highland	1. Kiambu
		2. Nyeri
		3. Kirinyaga
		4. Muranga
		5. Meru
		6. Nakuru
		7. Kericho
		8. Nandi
		9. Trans-Nzoia
		10. Nyandarua
		11. Uasin Gishu
		12. Kisii
		13. Nyamira
		14. Bungoma

|15. Kakamega
|16. Nairobi

TABLE B: HEALTH CENTERS AND DISPENSARIES IN SAMPLE DISTRICTS AND THE WHOLE COUNTRY.

AREA	HEALTH CENTERS		DISPENSARIES	
	NUMBER	PERCENTAGE	NUMBER	PERCENTAGE
Kilifi	4	13 %	17	18 %
Meru	13	42 %	32	34 %
Baringo	5	16 %	35	34 %
Busia	9	29 %	9	10 %
Total Sample Districts	31	100 %	93	100 %
KENYA	310		850	

TABLE C: LIST OF ALL HEALTH CENTERS AND DISPENSARIES IN FOUR SAMPLE DISTRICTS

MERU DISTRICT	BARINGO DISTRICT	KILIFI DISTRICT	BUSIA DISTRICT
		HEALTH CENTERS	
Ngewa	Marigat	Rabai	Kocholia
Ruiri RHDC	Tenges	Vipingo	Nambale
Githongo	Kabartonjo	Bamba	Bumala "B"
Mpukoni	Nginyang	Irana	Khunyangu
Muthambi	Eldama Ravine		Matayos
Mukui			Sio Port
Kiini			Mukhubola
Magutuni			Moding
Timau			Angurai
Marimanti			
Chiakariga			
Miathene			
Lare			

DISPENSARIES

Giaki
Gatimbi
Kibugua
Ontilili
Tunyai
Kamanyaki
Kathangachini
Nkondi
Kunene
Mikinduri
Muthaara
Mwero-o-Nkanga
Kangeta
Akachiu
Kina Nat. Park
Mutuati
Kiirua
Meru GK Prison
Kanyakine
Kionyo
Mitunguu
Urukuu
Kinooro
Mijumbune
Nthimbiri
Uru GK Prison
Kaongo
Kibirichia
Kathithi
Kinoru
Naari
Gakoromone

Barwesa
Kampisamalu
Kasiela
Cheberen
Kipsaraman
Maji Mazuri
Emining

Timboiywo
Seretunin
Bartolimo
Sagat
Kiboino
Kapchepkor
Kiptangich
Kipingor
Ngetmoi
Loboi
Tangulbei
Kaptum
Esageri
Narasha
Sacho
Sabatia
Sirwo
Poi
Mogorwa
Kituro
Kasisit
Kapluk
Bosei
Timboroa
Torongo
Talai
Maji Moto
DVBD Marigat

Pingilikani
Ngamboni
Matsangoni
Jaribuni
Muryachakwe
Mtwapa
Kombeni
Bwangamoyo
Ganze
Kambe/Ribe
Dida
Chonyi
Ngerenya
Takaungu
Gondoni
Vitengeni
Lenga
Tsangatsini

Rukala
Madua
Busembe
Buduta
Hakati
Amukura
Lukolis
Nambuku
Nangina

TABLE D: HEALTH FACILITIES SELECTED TO BE SURVEYED

SAMPLE DISTRICT	HOSPITAL	HEALTH CENTER	DISPENSARY
Kilifi	Kilifi	Vipingo	Ngamboni
		Bamba	Matsangoni
			Muryachakwe
			Kombeni
			Kambe/Ribe
			Dida
			Ngerenya
			Pingilikani
Meru	Meru	Githongo	Giaki
		Mpukoni	Kibugua
		Miathene	Mikinduri
		Timau	Muthaara
		Marimanti	Akachiu
		Chiakariga	Mutuati
			Kinoru
			Mikumbune
			Kibirichia
			Kathithi
			Naari
			Gakoromone
			Kaongo
			Kionyo
Busia	Busia Kocholia		Rukala
		Nambale	Busembe
		Khunyangu	Lukolis
		Sio Port	Nambuku
Baringo	Kabarnet	Marigat	Timboroa
		Tenges	Tagulbei
		DVBD Marigat	Ngetimoi
			Kibigor
			Sagat
			Sertunin
			Kipsaraman
			Barwesa
			Bartolimo
			Timboiywo
			Cheberen
			Esageri
			Sacho
			Kituro
			Kapluk

TABLE E: ACTUAL FACILITIES STUDIED

DISTRICT	HOSPITAL	HEALTH CENTER	DISPENSARY
Kilifi	Kilifi	Vipingo	Ngamboni
		Bamba	Matsangoni
			Vitengeni
			Kambe/Rimbe
			Dida
			Ngerenya
			Pingilikani
Meru	Meru	Githongo	Giaki
		Mpukoni	Kibugua
		Miathene	Mikinduri
		Timau	Muthaara
		Marimanti	Akachiu
		Chiakariga	Kangeta
			Kinoru
			Mikumbune
			Kibirichia
			Kathithi
			Naari
			Gakoromone
			Kaongo
			Kionyo
Busia	Busia Khunyangu	Hakati	
		Kocholia	Lukolis
		Nambale	Busembe
		Sio Port	Nangina
Baringo	Kabarnet	Marigat	Timboroa
		Tenges	Tagulbei
		DVBD Marigat	Ngetimoi
			Kibigor
			Sagat
			Sertunin
			Barwesa
			Bartolimo
			Timboiywo
			Cheberen
			Esageri
			Esageri Forest
			Sacho
			Kituro
			Kapluk
			Kasisit

Table E cont.

MACHAKOS		Kibwezi
MOMBASA	Coast General	

Table E 1. Changes made to the sample

Districts	Changes
Busia	Rukala and Nambuku replaced by Hakati and Nangina dispensaries, respectively
Baringo	Kipsaraman dispensary replaced by Kasisit Dispensary
Kilifi	Mryachakwe dispensary replaced by Vitengeni
Meru	Mutuati Dispensary replaced by Kangeta dispensary

APPENDIX 4: BUDGET ANALYSIS PROGRAM

This appendix is a listing of the DBase program used to monitor the allocation of MOH expenditures to primary and preventive health care and elsewhere. It uses information obtained from the survey to disaggregate the MOH budget into the appropriate categories.

```
use 89-90 rec
clear
@ 5,5 say 'please enter there necessary proportion'
@ 6,5 say '  '
Input 'Hospital P/PHC personnel component?     ' to p
Input 'Hospital P/PHC transport component?     ' to t
Input 'Hospital P/PHC drug dressing component?      ' to d
Input 'Hospital P/PHC equipment component?    ' to e
Input 'Hospital P/PHC maintenance component?   ' to m
Input 'Hospital P/PHC other supplies component? 'to s
Input 'Hospital P/PHC utilities and other supplies component?' to
person = 0
trans = 0
drug = 0
equip = 0
maint = 0
hd335 = 0
hd336 = 0
sv110 = 0
sv112 = 0
sv114 = 0
sv116 = 0
tfc = 0
os= 0
ous= 0
Do while .not. eof (1)
**** Personnel ****
if head = '316' .or. head = '317' .and. subvote='111'
  if head = '000' .or. item = '040' .or. item ='050' .or.
    item = '110' .or. item='112' .or.item='060' .or.item='080' .or.
    item = '172' .or. item= '181'
person = person + estplus1
   endif

**** Transport ****
```

```
if item = '100' .or. item = '200'
   Trans= trans + estplus1
endif

**** Drug - Dressing ****

if item = '151'
   drug = drug + estplus1


**** Equipment ****

if item = '220' .or.item='240'.or.item='250'
   equip= equip + estplus1
endif


**** Maintenance ****

if item = '260'
maint= maint + estplus1
endif

**** other supplies ****
if item= '155'.or.item='174'.or.item='176'
   os=os+estplus1
endif

********* utilities and other supplies *********
if item='120'.or.item='121'.or.item='140'.or.item='177'.or.
     item='230'
      uos=uos+estplus1
endif
endif
**** Cost of 335/6 ****

if head='335'.and.subvote='113'
    hd336=hd336 + estplus1
endif

if head = '316' .or. head = '317' .or. head = '335' .or.
    head = '336'
    tfc =tfc + estplus1
```

```
endif

**** Total sub vote 110 ****
if subvote = '110'
    sv110 = sv110 +estplus1
endif

**** Total sub vote 114 ****
if subvote = '114'
    sv114 = sv114 + estplus1
endif

**** Total sub vote 116 ****
if subvote = '116'
    sv116 = sv116 + estplus1
endif
enddo
opd = p*person + t*trans + d*drug + e*equip + m*maint + s*os +
    gadm = (opd + hd335 + hd336) *sv110/tfc
set devi to print
@ 5,15 say ' Total P/PHC Cost (in K Pds)'
@ 6,15 say ' --------------------------'
@ prow() + 2,10 say 'Under Hospital OPD'
@ prow() + 0,40 say opd pict '999,999,999'
@ prow() + 2,10 say 'Under head 335  '
@ prow() + 0,40 say Hd335 pict '999,999,999'
@ prow() + 2,10 say 'Under head 336'
@ prow() + 0,40 say hd336 pict '999,999,999'
@ prow() + 2,10 say Under General /Admin.  '
@ prow() + 0,40 say gadm pict '999,999,999'
@ prow() + 2,10 say 'Under training '

@ prow() + 0,40 say p*sv114 pict '999,999,999'
@ prow() + 2,10 say 'Under Drugs  '
@ prow() + 0,40 say d*sv116 pict '999,999,999
@ prow() + 1,10 say '---------------------------------'
@ prow() + 2,10 say 'Total '
@ prow() + 0,40 say opd + hd335 + hd336 + gadsm + p*sv114
+ d*sv116 pict '999,999,999'
@ prow() + 2,10 say '  '
set device to screen
```

APPENDIX 5: CENTRALLY FUNDED PROGRAMS

The Kenya Ministry of Health has four centrally funded programs operating with considerable donor support. These are:

Kenya Expanded Program of Immunization (KEPI)
Essential Drugs Program (EDP)
Control of Diarrheal Diseases (CDD)
Family Planning (FP)

Following work on determination of the resource gap for Primary and Preventive Health Care (P/PHC) at the facility level, USAID/Nairobi requested a determination of the financial status of the central operations of these programs. This report examines the operations of these programs relative to their planned activities, and their sources of funding by the Government of Kenya (GOK) and by donors. Each of the programs is discussed below. Financial conditions are summarized in Table 1.

It should be noted that this report did not attempt to determine the optimal level of resources required for these programs to operate. Rather, it examines the inability of these programs to achieve their plans for financial reasons. There are, of course, administrative, logistical, and other reasons why programs may not meet plans.

In general, this report finds that the KEPI and FP programs are well funded, with almost no financial difficulties in achieving their goals. The CDD program feels the need for some additional support in equipment and transport. The Essential Drugs Program, however, has serious financial problems that may endanger the sustainability of the program as donor funding is reduced.

KEPI

The KEPI program is a major activity in the MOH with a planned expenditure over the period 1991 to 1995 of KSh. 532 million (Ksh. 23 = U.S.$ 1). Of this amount, only KSh. 31.5 million is planned GOK expenditure. The resource gap survey found that at the facility level, there was no shortage of supplies or equipment for KEPI. This finding was corroborated by Dr. Sang, of the KEPI program. He stated that the KEPI program had encountered no problems with

funding for vaccines, equipment, or vehicles. As a result, the program has been able to meet planned activities. Dr. Sang believes that in the foreseeable future, everything in the KEPI plan will be accomplished.

The KEPI Plan of Operation, 1991-1995, notes that social mobilization will be an important part of the planned operations. The report finds that at least 95% of children had been exposed to at least one vaccine. The report argues that this suggests that the problem is not lack of vaccines or inaccessibility, but rather community support for KEPI. Although the report suggests greater social mobilization efforts are needed, Dr. Sang feels that the program currently has no financing problem with this effort. The program currently has a social mobilization consultant provided through the REACH project.

EDP

The Essential Drugs Program appears to be the only one of these central programs that is struggling to survive. It is the largest of the four, and appears to be the most underfunded. Moreover, donor support in this area is decreasing rapidly.

The program as it currently operates is intended to supply two kits (kit 1 and kit 2) per month to each rural health facility. The program does not currently operate in hospitals. Major donors have included Danida and SIDA since 1981. However these two donors are reducing support and plan to be completely out of the program by FY 1993-94. They are paying for 40% of the Kit 1s this year, 30% next year, 20% the year after, and then nothing thereafter. USAID contributed KSh. 50 million in counterpart funds this year, but this is expected to fall by 25% in the next year.

At the beginning of the program, the donors supplied 100% of the financing. As the program became established, donor support was reduced. The program was divided into the two-kit system, in which kit 1 included drugs acquired abroad and kit 2 drugs acquired locally. The MOH is now entirely responsible for purchase of the kits 2, and donor support for purchase of kits 1 is now down to 40% of the cost.

Mr. Johannson, DANIDA advisor for the PIU, estimates that the full cost of the EDP is about KSh. 223 million per year. This past year the budget was as follows:

	Cost	MOH	Donor
Kit 1	66,000,000	33,000,000	33,000,000
Kit 2	157,000,000	157,000,000	0
Total:	223,000,000	190,000,000	33,000,000

The MOH has not been able to support the program at this level. The GOK official budget for this program is only KSh. 60 million. Last year, although the MOH was committed to buying 50% of the Kit 1 supply, it purchased nothing. This year, the donors are requiring the MOH to purchase its share of the Kits 1 before the donor purchases. Even with DANIDA, SIDA, and USAID assistance, Johannson estimates that the program has only been able to deliver about 80% of the needed kits.

Despite this gloomy outlook, Johannson believes that the MOH will provide more funding for the program. He estimates that there is currently only about a three-month supply of Kits 2, but expects that the MOH will squeeze out a little more money for the program before supplies are exhausted. On the positive side, the program has established a strong institutional supply structure that works well. Training in the program has also been a success. Drug practices are good, with an average of 1.2 drugs per prescription. Diagnosis correctness is only at about 50%, which Johannson considers within an acceptable range.

CDD

The CDD program operates at a much lower level than the other central programs, with an annual budget of less than KSh. 20 million. The MOH portion of this budget for FY 90/91 is about KSh. 5.1 million. Program officials are concerned about the program because DANIDA has indicated that it would like to eliminate funding, which includes KSh. 2 million for training. UNICEF also appears to be reducing its funding.

According to Dr. Maholo and Mr. Baltizar, of the CDD program, their chief financial problems have been in training equipment and in vehicles. Their supply of ORS sachets is considered adequate, but distribution is a problem. The EDP supplies ORS to the rural health facilities, but hospitals must be supplied directly by the CDD program.

Teaching materials are a major concern for the program. They would like to equip six ORT training centers with equipment such as overhead projectors, slide projectors, and video equipment. In addition, they would like to set up four Diarrhea Training Units (DTUs) in Kakamega, Kisumu, Mombasa, and Nakuru. However, they currently have no funding for this. Maholo and Baltizar both indicated a need for training in computers and statistics, in order for the program to be able to analyze its own data.

Their other major problem has been with transportation for both distribution and supervision. Dr. Maholo indicated that the program needed a truck for distribution of the ORS sachets to hospitals. The six training centers had also requested transport of one vehicle each that the program could not supply. In addition, supervision of the program was hampered by the fact that the headquarters has only four vehicles. Dr. Maholo pointed out that the districts had been asking for transport for supervision as well.

FP

The facility survey revealed no shortage of contraceptives at the dispensaries, health centers, and hospital outpatient departments. Most of these contraceptives are being supplied by donors, and are expected to continue to be available for the foreseeable future.

Currently distribution of family planning materials is through three depots in Nairobi, Kisumu, and Mombasa. Supplies are currently being shipped by truck or train from these locations. However, in the next year USAID intends to purchase four vehicles exclusively for contraceptive distribution.

In general, program workers report that the program so far has met its planning goals. The program had an external evaluation conducted last year, which reported that program funding was sufficient to meet goals.

However, the current family planning program is almost completely funded by donors. If this funding were to be reduced significantly, the program could be in trouble. Currently, the forward budget for family planning provides the following funding forecasts:

1990/91	KSh. 76.9 million
1991/92	62.9 million
1992/93	71.4 million

Whether donor assistance is available in this quantity is unknown.

Table F.

Funding for Central Programs
Current and Expected, Next Two Years
(KSh. millions)

Program	FY 90/91 Budget	MOH Funded	DONOR FUNDING: Total FY 90/91	USAID Counterpart	Expected 1992-94
EDP	143	60	83	50	57-25
CDD	19	5	14	10	9.5
FP	77	0.8	76		62-71
KEPI (5 years)	533	32	501		

USAID has been supplying counterpart funding for these programs, but a 25% decrease in counterpart shillings is expected in FY 1991/92. In addition, DANIDA and SIDA are both reducing their support to these programs over the next two years. This will be particularly difficult for the EDP, whose external funding is expected to decrease rapidly. All of these programs, however, appear to be vulnerable to changes in donor funding.

The long-run sustainability of these programs appears to be in doubt. If donors decide that this is the appropriate time to reduce commodity support, or to begin cutting back on operational support, it is questionable whether the MOH would have adequate funds to fill the resulting gap. The real value of the MOH budget has been falling in recent years, the projected value of cost-sharing revenues has been decreased by about 50%, and the cost of the foreign commodities needed by these programs has been rising. Moreover, it is expected that the recent increase in the world price of oil will reduce the foreign exchange available to the MOH.

APPENDIX 6: SURVEY INSTRUMENTS

SURVEY INSTRUMENTS

The survey instruments collected information on the resources utilized to provide P/PHC and their costs. They were developed by first defining the P/PHC services to be analyzed, assessing the information which can be obtained from the MOH information systems, and finally, developing, pretesting, and finalizing the survey instruments. The instruments collect resource utilization and financial information. Brief summaries of the survey instruments follow.

AUTHORITY TO INCUR EXPENDITURE (AIE)

Facility: Health Centers, Dispensaries, and District Hospitals

Data Source: District Accountant Authorities to Incur Expenditures

The AIEs indicate the amount of money, by line item, allocated to each district to operate its health facilities for the financial year 1 July 1988 - 30 June 1989.

ANNUAL EXPENDITURE INSTRUMENT

Facility: Health Centers, Dispensaries, and District Hospitals

Data Source: District Accountant Vote Books

The Annual Expenditure instrument collected information on the expenditure for each line item included in the MOH budget for the financial year, 1 July 1988 - 30 June 1989 for each district. Both Actual Payments and Commitments were recorded in order to determine the total amount spent.

TRANSPORT OPERATING EXPENSES

Facility: Health Centers, Dispensaries, and District Hospitals

Data Source: District Accountant Payment Vouchers

Information concerning transport expenses, i.e. both petrol and maintenance expenses, were collected for each district. The payment voucher number, date of payment, account code, type of expenditure, vehicle registration number, and amount paid were recorded. This information was collected for the financial year 1 July 1988 - 30 June 1989.

BUILDING MAINTENANCE EXPENSES INSTRUMENT

Facility: Health Centers, Dispensaries, and District Hospitals

Data Source: District Accountant Payment Vouchers

Expenditures for building maintenance in each district were recorded. The information was obtained from the district Vote book and payment vouchers by recording all payments made as well as all commitments to pay. The number and date of the payment voucher, the type of facility, the type of repair, and the account code to indicate the line item concerned, and the amount paid were recorded. This information was collected for the financial year 1 July 1988 - 30 June 1989.

MAINTENANCE OF MEDICAL EQUIPMENT INSTRUMENT

Facility: Health Centers, Dispensaries, and District Hospitals

Data Source: District Accountant Payment Vouchers

Expenditures for maintenance of medical equipment in each district were recorded. This information was obtained from the district Vote book and payment vouchers by recording all payments made as well as all commitments to pay. The number and date of the payment voucher, the type of equipment, the type of repair, the account code to indicate the line item concerned, and the amount paid were recorded. This information was collected for the financial year 1 July 1988 - 30 June 1989.

DRUGS AND DRESSINGS INSTRUMENT

Facility: Health Centers, Dispensaries, and District Hospitals

Data Source: Medical Supplies Coordinating Unit

The prices of the kits supplied to Health Centers and Dispensaries were recorded. The unit prices of various contraceptives and vaccines were also collected.

VEHICLE REPLACEMENT COSTS

Facility: Health Centers, Dispensaries, and District Hospitals

Data Source: Afya House

The 1990 prices of replacing various types of vehicles used by the Ministry of Health were collected. Vehicles considered include: Land Rover, VW Microbus, Suzuki (SWB), Peugeot 504 (Saloon), Peugeot 504 (pickup), Nissan E23 Minibus - Diesel, Nissan E23 Minibus - Petrol, Toyota Minibus - Petrol and Diesel, Motorcycle - Yamaha and Motorcycle - Suzuki.

PERSONNEL COSTS INSTRUMENT

Facility: Health Centers, Dispensaries, and District Hospitals

Data Source: Afya House

Data on MOH positions for both medical and paramedical personnel was collected. This information included a schedule of positions, grades, housing allowances, other allowances, and salaries. For each staff position the instrument collected the approved estimate, the actual number, grades, salaries, and other benefits.

RECOMMENDED EQUIPMENT MAINTENANCE

Facility: Health Centers, Dispensaries, and District Hospitals

Data Source: Medical Engineering

Standard costs for maintaining selected medical equipment were collected. The equipment selected included equipment required to operate an OPD and provide PHC services. Recommended maintenance expenditures were also collected for non-medical equipment.

COST SHARING REVENUE

Facility: Health Centers, District Hospitals

Data Source: Revenue Clerks, Officers in charge

The revenue collected from cost-sharing was recorded for the four-month period from January - April 1990.

BUILDING MAINTENANCE

Facility: Health Centers, Dispensaries, and OPDs

Data Source: Primary Health Officer, Primary Health Technician, Person in Charge

The general condition of health facilities was surveyed. Respondents were asked to describe the condition of components of each facility as unusable, poor, fair, good, or excellent. Information concerning repairs done in the past year was also collected. In district and provincial hospitals, the percentage of floor space occupied by the OPD was determined.

SUPPLIES:

Facility: Health Centers, Dispensaries, and OPDs

Data Source: Storeman, Pharmacist, Lab Technician, and inventory records

The quantities of selected supplies received in March 1990 and the number of days during the month when the facility was out of stock were recorded. In hospitals, only records of supplies used by the OPD were taken into account. The selected supplies included supplies for EPI, dressings, laboratory supplies and vector control supplies. Expenditures for the purchase of food from January - March in the health centers were also recorded.

EQUIPMENT

Facility: Health Centers, Dispensaries, and OPDs

Data Source: Observation and interviews

The number of pieces of equipment, their condition categorized as either working or not, and an assessment of whether or not they are reparable were recorded. For medical equipment, each department was visited. For non-medical equipment, only that equipment in the health center, dispensary, or the hospital outpatient department was surveyed.

VEHICLE TRANSPORT

Facility: Health Centers, Dispensaries, and OPDs

Data Source: Interviews, the Hospital Secretary, work tickets

Several types of data on transport used at the facilities were collected. An inventory of vehicles was conducted including the number and type of vehicles and the condition of the vehicle (whether grounded or in operation). Information was also collected on the monthly use of the vehicle in order to determine the percentage of time the vehicle is in use and the percentage of time it is idle. In addition the purpose for which the vehicle was used during the last week was obtained from the current work ticket.

IN-SERVICE TRAINING

Facility: Health Centers, Dispensaries, and OPDs

Data Source: Interviews with the facility director and staff

Information was collected about in-service training related to P/PHC which MOH personnel have received. In hospitals, only staff working in the OPD were considered.

PRIMARY CURATIVE CARE CASES

Facilities: Health Centers, Dispensaries, and OPDs

Data Source: Monthly reports, the Outpatient Register

The number of new cases, reattendances, and referrals were recorded for outpatient visits during the period of January - March 1990. The number of inpatient days in the health centers was collected for the same period.

Non Curative Care Client Contacts

Facilities: Health Centers, Dispensaries, and OPDs

Data Source: Monthly reports, interviews with personnel

The number of planned and actual activities which are not curative care, family planning, or immunization were recorded. The constraints which caused the difference between the number of planned and actual services were also collected. The numbers of home visits, public meetings, barazas (fund raisers), education sessions, inspections, demonstrations, and site treatments conducted for health education, nutrition, water and sanitation, and vector control activities were included. This information was collected for the last three months.

MCH/KEPI/Family planning activities

Facilities: Health Centers, Dispensaries, and OPDs

Data Source: Monthly reports, KEPI and MCH/FP registers

The numbers of immunizations and family planning services provided during March 1990 were collected.

Staff Resources

Facilities: Health Centers, Dispensaries, and OPDs

Data Source: Supervisors of the Health Centers, Dispensaries, and OPDs, the hospital matrons, and the hospital superintendents.

The number of staff members in each staff category and the job group of each category were collected. For hospital personnel, the numbers of hours per week worked in the OPD were collected.

Hospital Drug Supply

Facilities: Hospitals

Data Source: Bin cards and S11 form in the pharmacy

For selected medicines, the quantities used in the OPD, the minor theater, the injection room, and the dressing room during March 1990 were recorded. Additionally, the number of days out of stock of each medicine was recorded. The medicines selected included those most commonly prescribed for P/PHC.

Health Center and Dispensary Drug Supply

Facilities: Health Centers and Dispensaries

Data Source: Bin cards and S11 form in the pharmacy

The dates of arrival of the last two drug kits were recorded. Also, for selected medicines, the date the supply in the previous drug kit ran out or the quantity remaining when the current drug kit arrived was recorded. Selected medicines included those most commonly used in P/PHC.

Health Center and Dispensary Drugs Returned

Facilities: Health Centers and Dispensaries

Data Source: Bin cards and S11 form in the pharmacy

The quantities returned to the district were recorded for a selection of medicines. The medicines included were those which are used for the treatment of the endemic diseases, such as malaria and diarrhea, which vary from region to region.

Vehicle District Inventory

Facilities: District Hospitals

Data Source: District Personnel

The number, make, and general condition of the vehicles were recorded for each of the four districts.

Equipment Replacement Costs

Facility: Health Centers, Dispensaries, and District Hospitals

Data Source: Afya House

The replacement costs of various types of medical equipment were collected. Equipment considered includes equipment used in the provision of P/PHC.

AUTHORITY TO INCUR EXPENDITURES

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

Data source: District AIE's

District Expenditure Form

Authorized to Incure Expenditure: FY: _____

District: _____

Head: _____

		1st Alloc.	2nd Alloc.	Supp. Alloc
080	PASSAGES AND LEAVE TRAVEL EXP			
084	Leave Travel - Local			
100	TRANSPORT AND MAINTENANCE			
101	Operating Expense and Vehicle			
104	Overhaul, Repair of Vehicles			
110	Travel and Accom. Allow.Expen.			
111	Travelling and Accom. Allow.			
113	Bicycle Allowance			
114	Motor Mileage Allowance			
120	Postal, Telegram Expenses			
121	Telephone Expenses			
140	Electricity,Water,Conservancy			
141	Electricity,			
142	Water			
143	Conservancy			
144	Gas			
145	Fuel			
151	Drugs and Dressing			
152	Insurance			

District Expenditure Form
Authorizations to incur Expenditure: FY_____
(Continued)

153	Non-Scheduled Drugs Fungicides, Insecticides, Sprays			
154	Oxygen Sera and Vaccine			
155	X-ray Supplies			
156	X-ray Equipment			
165	Doctors and Nurses Food			
172	Purchase of Uniform/Clothing staff			
173	Library Expenses			
174	Stationery			
176	Printing			
177	Cleansing Material			
181	Pay of Rents/Rates - Residence			
190	Miscellaneous/Other Charges			
192	Training Programs			
195	Purchase of Dental. Equipments			
200	Replacement of motor vehicles.			
202	Replacement of Bicycles/Motocycles			
210	Purchase of Additional Vehicles			
220	Purchase of Plant and Equipment			
221	Medical Equipment			
222	Laboratory Equipment			
223	Orthopaedic Appliances			
224	Therapy Appliances			
230	Office Equipment			
240	Maintenance of Dental Equipment			
250	Maintenace of Plant/Machine/Equp.			
252	Maintenance of Medical Equipment			
260	Maintenance of Buildings			

Annual Expenditure

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

Data source: District Accountant Vote Books

1. Obtain the Vote Books from the District Accontant for the Finanical Year, 1, July 1988 - 30 june 1989.
2. Complete a worksheet for each vote book
3. Each line item should correspond with a page in the vote books for the District Hospital and the Rural Health Facilities. In the Third vote book you may find more than one entry for a line item. In that case, record each entry
4. Record the last entry in the total payments column as actual payments and the last entry in the total commitments as commitments.

		Acct. Code	Actual Payments.	Commitments
080	PASSAGES AND LEAVE TRAVEL EXP			
084	Leave Travel - Local			
100	TRANSPORT AND MAINTENANCE			
101	Operating Expense and Vehicle			
104	Overhaul, Repair of Vehicles			
110	Travel and Accom. Allow.Expen.			
111	Travelling and Accom. Allow.			
113	Bicycle Allowance			
114	Motor Mileage Allowance			
120	Postal, Telegram Expenses			
121	Telephone Expenses			
140	Electricity,Water,Conservancy			
141	Electricity,			
142	Water			
143	Conservancy			
144	Gas			
145	Fuel			
151	Drugs and Dressing			
152	Insurance			

153	Non-Scheduled Drugs Fungicides, Insecticides, Sprays			
154	Oxygen Sera and Vaccine			
155	X-ray Supplies			
156	X-ray Equipment			
165	Doctors and Nurses Food			
172	Purchase of Uniform/Clothing staff			
173	Library Expenses			
174	Stationery			
176	Printing			
177	Cleansing Material			
181	Pay of Rents/Rates - Residence			
190	Miscellaneous/Other Charges			
192	Training Programs			
195	Purchase of Dental. Equipments			
200	Replacement of motor vehicles.			
202	Replacement of Bicycles/Motocycles			
210	Purchase of Additional Vehicles			
220	Purchase of Plant and Equipment			
221	Medical Equipment			
222	Laboratory Equipment			
223	Orthopaedic Appliances			
224	Therapy Appliances			
230	Office Equipment			
240	Maintenance of Dental Equipment			
250	Maintenace of Plant/Machine/Equp.			
252	Maintenance of Medical Equipment			
260	Maintenance of Buildings			

TRANSPORT OPERATING EXPENSE
PAYMENT VOUCHERS

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

Period: 1 july 1988 - 30 june 1989

Data Sources: District Accountant

Payment vouchers
and Vote Book

Line Items to include:

100 Transport and Maintenance
101 Operating Expenses of Vehicles
104 Overhaul and Repair of Vehicles

Instructions:

1. Obtain the Payment Vouchers and the vote for the MOH for the Financial year. 1 july 1988 - 30 June 1989, from the District Accountant.
2. Look at the description of each expenditure and select those pertaining to vehicle repair of purchase if fuel. The line items should either be 100 or 104.
3. Record the necessary information from the Payment Voucher.
4. Verify that you have found information for all expenditures for vehicles by looking through the vote books for expenditures, comparing the number of the payment vouchers and recording any expenditures for which payment vouchers were not found. You can look at the pages for the specific line items in the Vote Books for the District Hospital and Rural Health Centers. In the third Vote Book you will have to look through each page.

Payment Voucher #	Acct. Code	Type of Expenditure	Vehicles Reg. Number	Amount Paid

TRANSPORT OPERATING EXPENSE
PAYMENT VOUCHERS Cont.

Payment Voucher #	Date	Acct. Code	Type of Expenditure	Vehicle Reg. Number	Amount Paid

BUILDING MAINTENANCE EXPENSE
PAYMENT VOUCHERS

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

Period: 1 july 1988 - 30 june 1989

Data Sources: District Accountant

Payment vouchers
and Vote Book

Line Items to include:

260 Maintenance of Buildings and Stations

Instructions:

1. Obtain the Payment Vouchers and the Vote Books for the MOH for the Financial year. 1 july 1988 - 30 June 1989, from the District Accountant.

2. Look at the description of each expenditure and select those pertaining to buildings. The line Item should be 260

3. Record the necessary information from the Payment Voucher.

4. Verify that you have found information for all expenditures for building Maintenance by looking through the vote books for expenditures, comparing the number of the payment vouchers and recording any expenditures for which payment vouchers were not found. You can look under the specific line item in the Vote Books for the District Hospital and Rural Health Centers. You will have to look at each page of the third vote book.

Payment Voucher #	Date	Type of Facility	Account Code	Type of Expenditure	Amount Paid

BUILDING MAINTENANCE EXPENSE Cont.

Payment Voucher #	Date	Type of Facility	Acct. Code	Type of Expenditure	Amount Paid

MEDICAL EQUIPMENT MAINTENANCE EXPENSE
PAYMENT VOUCHERS

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

Period: 1 july 1988 - 30 june 1989

Data Sources: District Accountant

Payment vouchers
and Vote Book

Line Items to include:

252 Maintenance of medical equipment

Instructions:

1. Obtain the Payment Vouchers and the Vote Books for the MOH for the financial year, 1 july 1988 - 30 June 1989, from the District Accountant.

2. Beginning with the payment vouchers, look at the description of each expenditure and select those pertaining to maintenance of medical equipment. The line item should be 252.
3. Record the necessary information from the Payment Voucher.

4. Verify that you have found information for all expenditures for medical equipment maintenance by looking through the vote books for expenditures, comparing the number of the payment vouchers and recording any expenditures which payment vouchers were not found. You can look under the specific line item in the Vote Books for the Rural Health Centers and District Hospital. You should look through each page of the third vote book.

Payment Voucher #	Date	Type of Equipment	Acct Code	Nature of Payment	Amount Paid

MEDICAL EQUIPMENT MAINTENANCE EXPENSE Cont.

Payment Voucher #	Date	Type of Equipment	Acct. Code	Nature of Payment	Amount Paid

DRUSGS AND DRESSINGS

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

Data source: Medical Supplies Coordinating Unit

Category	Procurement	Insurance	Total Cost
HEALTH CENTRE			
Kit I			
Kit II			
DISPENSARY			
Kit I			
Kit II			

Contraceptives	Cost/Unit	Units/Pkg	Ins./Pkg.	Ins./Unit
Pills	Avg. Cycle ____			
Injectable	Avg. dose:			
IUD	Avg. unit:			
Condoms	1 piece:			
Forming tablets	1 piece:			
Jellies	1 tube:			
Diaphragm	1 piece:			

Vaccines	Cost /Pkg.	Cost/Pkg.	Cost/Vial.	Ins./Pkg.	Cost + Ins. / Vial
Oral Polio					
DPT					
Measles					
BCG					
Tetanus Toxoid					

Dressings	Cost/Pkg.	Units/Pkg.	Cost/Unit
Gauze			
Cotton Roll			
Sutures			
Syringes			
Needles			
Gloves			
Bandages			
Surgical Scalpel Blade			
Normal Saline			

Lab Supplies	Cost/Pkg.	Units/Pkg.	Cost/Unit
Gram Stains			
Field Stains			
Uristixs			
Slides			
Specimen Bottles			

Vector Control	Cost/Unit
Insecticide	
Larvacide	

EQUIPMENT REPLACEMENT COSTS

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE:

INTERVIEW DATE: | | | | | | |

Data Source: Afya House

ITEM	REPLACEMENT COST
General Medical	
Baby Weighing Scale	
Adult Weighing Scale	
Cold Weighing Illuminator	
Stethoscope	
Blood Pressure Machine	
Table Boiler	
Refrigerator	
Gas Cooker	
Steam Sterilizer	
Examining Couch	
Suction Pump	
Examining Couch	
Suction Pump	
Coldlight Illumin.	
Balance	
Portable light	
X-Ray Dept. X-Ray Machine	
Film Viewer	
Laboratory	
Blood Analyser	
Microscope	
Haemoglobinometer	

Weighing Scales
Centrifuge

VEHICLE REPLACEMENT COST

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

Data Sources: Afya House

Vehicle Type	Replacement Costs
Motorcar	
Motorcycle	
Biscycle	

PERSONNEL COSTS

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

Data source: Afya House

Position	Approved Est.	Actual Num.	Job Grp	Salary	Housing Allow.	Other Allow.	Total Emol.
Doctors							
Clinical Officer							
Dentists							
Dental Tech.							

Personnel Costs Cont.

P.H.O									
P.H.T									
Occ. Ther.									
Nutrition Officer									
Nutrition Field Worker									
Comm. Oral H. Ed. Off.									

Personnel Cost Cont.

Pharmacist									
Pharm. Tech.									
Lab. Technologist									
Lab. Technician									
Registered Nurse									
Enrolled Comm. Nurse									

Hosp. Sec									
Health Education Officers									
F.H.F.E									
Med. Soc. Workers									
Med. Rec. Officers									
Clerks									
Drivers									

Personnel Costs Cont.

Subordinate Staff										
Secretarial Staff										
Physiotherapist										

RECOMMENDED
EQUIPMENT MAINTENANCE COSTS

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE:

INTERVIEW DATE: | | | | | | |

Data Source: MEDICAL ENGINEERING

ITEM	REPLACEMENT COST
General Medical	
Baby Weighing Scale	
Adult Weighing Scale	
Cold Weighing Illuminator	
Stethoscope	
Blood Pressure Machine	
Table Boiler	
Refrigerator	
Gas Cooker	
Steam Sterilizer	
Examining Couch	
Suction Pump	
Examining Couch	
Suction Pump	
Coldlight Illumin.	
Balance	
Portable light	
X-Ray Dept. X-Ray Machine	
Film Viewer	

RECOMMENDED

EQUIPMENT MAINTENANCE COSTS Cont.

Laboratory	
Blood Analyzer	
Microscope	
Weighing Scales	
Centrifuge	
Orthopaedic	
Wheel Chairs	
Crutches	
Drilling Mach.	
Lever Cutter	
Physiotherapy	
Micro Waiver Dia	
Electric Stimulator	
Dental Unit	
Dental Chair	
Forceps	
Sterilizer	
Model Grinder	
Autoclaves.	
Non - Medical	
Tables	
Desks	
Typewriters	
File Cabinets	
Generators	

COST SHARING REVENUE

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE:

INTERVIEW DATE: | | | | | | |

Collect information from the Revenue clerk
or officer in - charge for Health Centres and Hospital

MONTH	AMOUNT (KSHS)
JANUARY	
FEBRUARY	
MARCH	
APRIL	

NON CURATIVE CARE CLIENT CONTACTS

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE:

INTERVIEW DATE: | | | | | | |

Collect information from the last three monthly reports on all planned and actual number of activities that are not curative care, monthly reports, it will be necessary to interview individuals, explaining that we want to count the number of non currative contacts with the public. This will include health education, nutrition, Water and Sanitation, and vector control activities. Count each home visit, public meeting, barazas, education sessions, insepection, demonstration or site treatment as a single contact.

Staff	REPLACEMENT COST
Clinical Officer	
Public Health Off.	
Nutrition Field Worker	
Public Health Tech.	
Registered Nurse	
DVBD Tech.	

For Reason for Difference, code and following:

1. Transport
2. Staff
3. Drugs.
4. Equipment/Supplies
5. Other

PRIMARY CURATIVE CARE CASES

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

For Health Centers and Dispensaries, record the number of curative care cases during the period of January through March. This information should be available from the monthly reports. Otherwise, referr to the outpatient register. For Hospital outpatient departments, record the number of outpatient cases.

Monthly Activity Report	Total New Cases (Line 41)	Reattendances (Line 42)	Referrals (Line 43)
January			
February			
March			

In addition, for Health Centers, record the total number of inpatient days for the same period.

January _____

February _____

March _____

MCH/KEPI/FAMILY PLANNING SERVICES

FACILITY NAME:_____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

INSTRUCTIONS: Record the quantity of immunizations and family planning services provided by the facility during the month of March, 1990. This information should be available from the monthly reports, or from KEPI and MCH/FP registers.

(A) KEPI IMMUNIZATIONS

Type of Vaccine	Number of doses administered
BCG	
POLIO	
DPT	
MEASLES	
TETANUS TOXOID	

(B) FAMILY PLANNING

Quantities of contraceptives distributed or procedures performed.

	NOS. (Cycles for the pill)
1. Pills	
2.Condoms	
3.Injectables	
4.IUD	
5.Tubal ligation	
6.Vasectomies	

HEALTH CENTER AND DISPENSARY DRUG SUPPLY

FACILITY NAME:_____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

INSTRUCTIONS: Information is needed on how long drugs in the drug kits lasted. From the facility records, including BIN cards and S11 forms, record the dates of arrival of the last two drug kits (current and previous). Then, from the previous drug kit, record the date that the following drugs were out of stock, or the quantity left in stock at the arrival of the current drug kit.

Date current KIT arrived: | | | | | | |

Date previous KIT arrived: | | | | | | |

DRUGS FROM PREVIOUS DRUG KIT:

	Date drug depleted	OR	Quantity remaining when current kit arrived.
1. Paracetamol Tabs.			
2. Orolites (ORS)			
3. Penicillin Tabs. (250mg)			
4. Largactil Tabs. (25mg)			
5. Chloroquin Tabs.			
6. Piriton Tabs.			
7. Mebendazole			
8. Ferrous Sulfate Tabs.			
9. Franol			
10.Tetracycline Eye Oint.			
11.Whitfield Oint.			
12.Magnesium Trisilicate			

HEALTH CENTER AND DISPENSARY DRUGS RETURNED

FACILITY NAME: _____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

Instructions: Record any quantities of the following drugs that were returned to the District during January through March.

Drug	Drugs returned during: January	February	March
Ferrous Sulfate Tabs.			
Largactil Tabs.			
Chloroquin Tabs.			
Yeast Tabs.			
Ergometine Tabs.			
Franol Tabs.			
Oralite Satchets			
Inj. Procaine Penicillin			

HOSPITAL DRUG SUPPLY

FACILITY NAME:_____ CODE: | | |

ENUMERATOR NAME: _____ CODE: | | |

INTERVIEW DATE: | | | | | | |

INSTRUCTIONS: INFORMATION TO BE COLLECTED FROM BIN CARDS AND S11 FORMS IN THE PHARMACY FOR THE MONTH OF MARCH 1990

DRUGS	Amount used for Outpatient Dept. **	Days out of stock
1. Paracetamol Tabs.		
2. Orolites (ORS)		
3. Penicillin Tabs(250mg)		
4. Largactil Tabs. (25mg)		
5. Chloroquin Tabs.		
6. Piriton Tabs.		
7. Mebendazole		
8. Ferrous Sulfate Tab.		
9. Franol		
10.Tetracycline Oint.		
11.Whitfield Oint.		
12.Magnesium Trisilicate		

** Also Collect Information for the following areas:

- Minor theatre
- Injection room
- Dressing room

BUILDING MAINTENANCE

FACILITY NAME:_____CODE: | | |

ENUMERATOR NAME: _____CODE: | | |

INTERVIEW DATE: | | | | | | |

INSTRUCTION: Interview the PHO or the PHT or the person in charge of the facility. Collect this information for health centers, dispensaries, and the hospital outpatient department. Use the following scale for condition of building systems:

1 if Excellent Condition, needing no repairs.
2 if Good Condition, needing only minor repairs.
3 if Fair Condition, needing major repairs.
4 if Poor Condition, needing major rebuilding.
5 if Unusable Condition, must be replaced.

If repairs performed in past year code: 1 if yes
0 if no

Major Systems	Condition of Major System	Repairs in Past Year?
Roof/Ceilings		
Windows/Doors		
Walls/Painting		
Plumbing		
Electrical		
Drainage		
Foundation		
Sanitary Facilities		
Fencing/Compound		
Other		

For hospitals ask for the percentage of floor space in:

Outpatient Dept.:_____ Other facilities:_____

SUPPLIES

FACILITY NAME: _____CODE: ☐☐

ENUMERATOR NAME:_____CODE: ☐☐

INTERVIEW DATE: ☐☐☐☐☐☐☐☐

INSTRUCTIONS: From the records of the facility, determine the quantity of the following supplies received during the month of March, 1990, and how many days during the month when the facility was out of stock. Information can be taken from Storeman, Pharmacist, and Lab Technician. In hospitals, record dressing supplies going to the outpatient department only.

	Quantity Received	Days out of Stock
KEPI SUPPLIES		
Oral Polio Vials		
DPT Vials		
Measles Vials		
BCG Vials		
Tetanus Toxoid Vials		
DRESSING SUPPLIES Gauze		
Cotton Rolls		
Strappings		
Syringes (5cc)		
Needles		
Gloves (disposable)		
Gloves (surgical)		
Bandages		
Normal Saline		
LAB SUPPLIES Gram Stains		
Field Stains		
Uristixs		
Slides		

SUPPLIES

FACILITY NAME: _____CODE: ☐☐☐☐

ENUMERATOR NAME:_____CODE:

INTERVIEW DATE: ☐☐☐☐☐☐☐☐

INSTRUCTIONS: From the records of the facility, determine the quantity of the following supplies received during the month of March, 1990, and how many days during the month when the facility was out of stock. Information can be taken from Storeman, Pharmacist, and Lab Technician. In hospitals, record dressing supplies going to the outpatient department only.

	Quantity Received	Days out of Stock
LAP SUPPLIES		
Specimen Bottles		
VECTOR CONTROL		
Insectcide		
Larvacide		

In addition, for health centre only (not for hospitals), what did the facility spend for food purchases in the following three months?.

January	February	March
_____	_____	_____

Continued

FACILITY NAME: _____CODE: ☐☐☐☐

ENUMERATOR NAME:_____CODE:

INTERVIEW DATE: ☐☐☐☐☐☐☐☐

INSTRUCTIONS: Enumerators to visit each of the departments to fill out questionnaire for medical equipment. For non-medical equipment, record the equipmment in the health center, dispensary, or the hospital outpatient department only.

ITEM	NUMBER AVAIL.	NUMBER working	OF THOSE NOT WORKING	
			Number repairable	Number not repairable
Geneal Medical Baby Weighing Scale				
Adult Weighing Scale				
Stethoscope				
Blood Pressure Mach.				
Autoclave				
Refrigerator				
Gas Cooker				
Steam Sterilizer				
Examining Couch				
Suction Pump				
Portable light				
Laboratory Coulter Counter				
Microscope				
Haemoglobinometer				
Weighing Scale (analytic balance)				
Centrifuge				

FACILITY NAME: _____CODE: ☐☐☐☐

ENUMERATOR NAME:_____CODE:

INTERVIEW DATE: ☐☐☐☐☐☐☐☐

ITEM	NUMBER AVAIL.	NUMBER working	OF THOSE NOT WORKING Number repairable	Number not repairable
Orthopaedic Wheel Chairs				
Crutches				
Physiotherapy Micro Waiver Diathermy				
Electric Stimulator				
Dental Unit Dental Chair				
Sterilizer				
Model Grinder				
Autoclave				
Non-Medical Benches				
Tables				
Typewriters				
File Cabinets				
Generators				
Environmental				
Food Sampling Kit				
Tool Box				
Lactometer				
Chrolometer				
Sprayer Pumps				

Cont.

VEHICLE DISTRICT INVENTORY

FACILITY NAME: ____________________________________ CODE: [ ][ ]

ENUMERATOR NAME: ____________________________________ CODE: [ ][ ]

INTERVIEW DATE: [ ][ ][ ][ ][ ][ ][ ]

Serial Number	Vehicle Reg. No.	Make of Vehicle	Vehicle condition (Operating of Grounded)

VEHICLE

FACILITY NAME: _____CODE: | | |

ENUMERATOR NAME: _____CODE: | | |

INTERVIEW DATE: | | | | | | |

VEHICLE: Use form for each vehicle assigned to the facility.

Type of Vehicle: _____ Registration No. _____

Collect information on each of the vehicles for the last 7 days of the current work ticket. Interview the signatories and the transport officer to obtain the purpose of the journey.

PURPOSE	MCH/FP	KEPI	H.E	NUTR.	WAT & SAN	SUPPLY OF RHF,DRUGS	DEMONS
Trips							
DAY 1							
DAY 2							
DAY 3							

VEHICLE

FACILITY NAME: _____CODE: | | |

ENUMERATOR NAME: _____CODE: | | |

INTERVIEW DATE: | | | | | | |

VEHICLE: Use form for each vehicle assigned to the facility.

Type of Vehicle: _____ Registration No. _____

Collect information on each of the vehicles for the last 7 days of the current work ticket. Interview the signatories and the transport officer to obtain the purpose of the journey.

PURPOSE	MCH/FP	KEPI	H.E	NUTR.	WAT & SAN	SUPPLY OF RHF,DRUGS	DEMONS
Trips							
DAY 4							
DAY 5							
DAY 6							
DAY 7							
.	.	.	.	.	.	.	.

Continued

VEHICLE

FACILITY NAME: _____CODE: ☐☐☐☐

ENUMERATOR NAME: _____CODE:

INTERVIEW DATE: ☐☐☐☐☐☐☐

VEHICLE: Use one form for each vehicle assigned to the facility

Type of Vehicle: _____ Registration No. _____

Record the vehicle use for the month of March by referring to trip records. For each trip, record the number of hours of use to the nearest quarter hour (for example: 3.75 hours). Also record if vehicle was disabled during that day.

	Hours of Use for trip Number:											Disabled?
Date	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	1 if yes
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												

VEHICLE

FACILITY NAME: _____CODE: ☐☐

ENUMERATOR NAME: _____CODE: ☐☐

INTERVIEW DATE: ☐☐☐☐☐☐☐☐

VEHICLE: Use one form for each vehicle assigned to the facility

Type of Vehicle: _____ Registration No. _____

Record the vehicle use for the month of March by referring to trip records. For each trip, record the number of hours of use to the nearest quarter hour (for example: 3.75 hours). Also record if vehicle was disabled during that day.

	Hours of Use for trip Number:											Disabled?
Date	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	1 if yes
20.												
21.												
22.												
23.												
24.												
25.												
26.												
27.												
28.												
29.												
30.												
31.												

IN SERVICE TRAINING

FACILITY NAME: _____CODE: ☐☐☐☐

ENUMERATOR NAME: _____CODE: ☐☐☐☐

INTERVIEW DATE: ☐☐☐☐☐☐☐☐

INTTRUCTIONS: Ask about the staff at the facility, and record the numbers of P/PHC staff with in-service training in the following courses. Facility director may be able to provide this information. If unknown, code "UK".

Staff Member	# of Staff	KEPI	CDD	Family Plan.	Plan & Mgmt.	Essent Drugs	Water supp. Sanitation	PHC
Dist. Health Management Team								
DMOH								
DPHO								
DPHN								
DHEO								
D. Nutritionist								
Hosp. Sec.								
D. Med. Rec.								
Hospital Matron								
FACILITY LEVEL								
Clinical Officer								
Registered Nurse								
Enr Nurse/Midwife								
PHO								
PHT								
Stat. Clerk								
Nutritionist(NFW)								
DVBD Lab Tech.								

STAFF RESOURCES

FACILITY NAME: _____CODE: ☐☐☐☐

ENUMERATOR NAME: _____CODE:

INTERVIEW DATE: ☐☐☐☐☐☐☐☐

INTRUCTIONS: Record the number of staff in the Health Center or Dispensary For Hospitals, record the number of Doctors, Clinical Officers, and Nurses working in the Outpatient Department. Respondents will be persons in charge of the center or dispensary, hospital matron for nurses, hospital superintendant for doctors, PHOs, PHTs.

Position	Number	For Hospital OPD: OPD Hours/weeks	JOB GROUP.
Doctors			
Clinical Officers			
Dentists			
Pharmacists			
Pharm. Technol.			
Registered Nurse			
Enrolled Nurse			
PHO.			
PHT.			
Occ. Therapist			
Nutrition Officer			
Nutrition Field Worker			
Comm. Oral H.Ed. Off.			
Health Ed. Off			
F.H.F.E.			
Med. Social Worker			
Physiotherapists			
Hosp. Sec.			
Lab Technologist			
Lab Technician			

STAFF RESOURCES

FACILITY NAME: _____CODE: ☐☐

ENUMERATOR NAME: _____CODE: ☐☐

INTERVIEW DATE: ☐☐☐☐☐☐☐☐

INTRUCTIONS: Record the number of staff in the Health Center or Dispensary For Hospitals, record the number of Doctors, Clinical Officers, and Nurses working in the Outpatient Department. Respondents will be persons in charge of the center or dispensary, hospital matron for nurses, hospital superintendant for doctors, PHOs, PHTs.

Position	Number	For Hospital OPD: OPD Hours/weeks	JOB GROUP.
Med. Records Off.			
Clerks			
Drivers			
Subordinate Staff			
Secretarial Staff			

Continued

BIBLIOGRAPHY

1. Republic of Kenya (1989/90)

   Estimate of Recurrent Expenditure of G.O.K. for the Year Ending 30th June 1990 (GVT Printer, 1989, NBI).

2. O.D.A. Report (May 1989)

   Forestry Departmental Vehicle Fleet Assessment Study Kenya (T.P. O'Sullivan & Partners, Consulting Engineers Banbury, England).

3. Bennet, F.J. and Maneno J, (Ed)

   National Guidelines for the Implementation of Primary Health Care in Kenya (Mimeo NBI, 1986).

4. MOH, National Guidelines for the Implementation of Primary Health Care in Kenya (WHO/UNICEF, 1986).

5. MOH, Cost Sharing Implementation Document, 1990.

6. MOH, Health Center and Dispensary Equipment Norms.

7. MOH, Bill of Quantities for Isiolo Hospital.

8. Republic of Kenya

   Program Review and Forward Budget, Recurrent Expenditures 1990/91 - 1992/93.

9. MOH, Bill of Quantities for Msambwe Hospital.

10. Msau, Pharmaceutical Requirement Summary for Hospitals.

11. MOH, Staffing Norms and Manpower Development, First Draft, March 1987.